FEBRUARY 1960

THE Airman

OFFICIAL JOURNAL OF THE AIR FORCE

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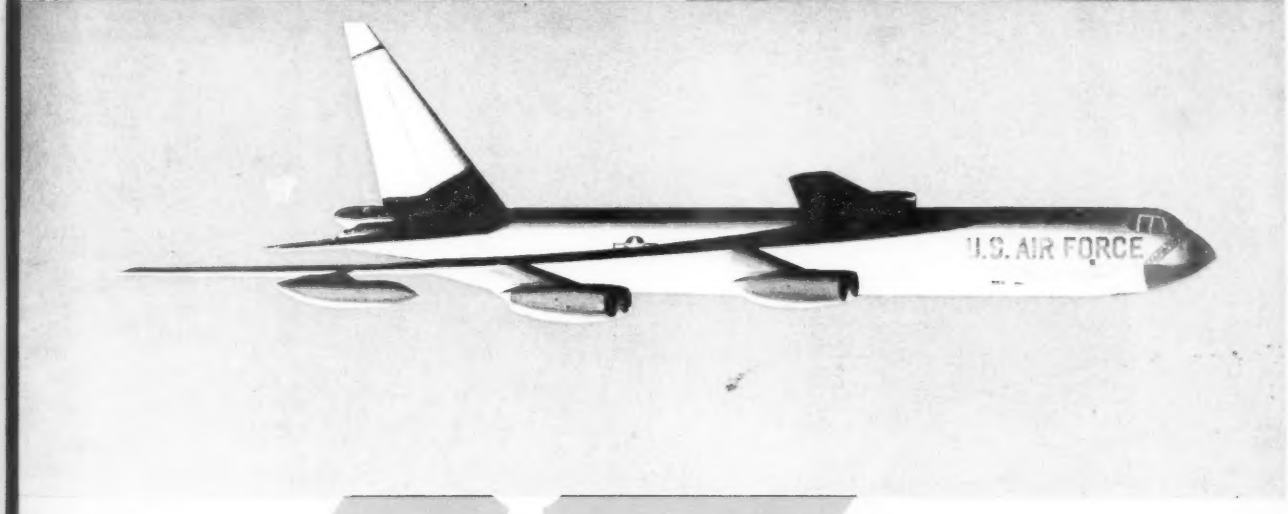

SAC . . . Its Deterrent Role, page 2

Communist Illusion
and Democratic Reality, page 18

First Atlas *firing from Vandenberg AFB, Calif. Photo by Henry Kierstead, courtesy* Convairiety

THE Airman

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LETTERS TO THE EDITOR

We Hope So Too

Sir: I have subscribed to THE AIRMAN for one year in the name of my brother. He is a rational person. Although he made an initial mistake in his service career by choosing to go to West Point instead of the Air Force Academy, I still hope he will "go Air Force." Friendly persuasion plus THE AIRMAN should convince him.

Lt. Bruce Ericksen
APO 929, San Francisco, Calif.

★ ★ ★

Unavailable

Sir. One of the many questions that gets kicked around here during some of the "quiet" hours on the line is that of record flying times. To the best of your knowledge, do you know of any Air Force aircraft which has ever logged 300 or more hours during a single month? Please do not include endurance flights such as that of the *Question Mark.*

TSgt. Anthony Segatti
Griffiss AFB, N. Y.

● *Records of individual aircraft are not kept at this headquarters; consequently, we do not have knowledge of any aircraft which might hold such a record. If any reader does, we would be more than happy to print the information.*

★ ★ ★

Education

Sir: In your May '59 issue, you carried a story on the Air University. I was rather disappointed to note the limited coverage which was given to ECI. Certainly, the institute's enrollment warranted more space than it was given.

TSgt. Robert Pierce
Gunter AFB, Ala.

● *The design was deliberate. Complete ECI coverage is scheduled for a future date, and the aim was not to "kill" a subject which can stand individual treatment.*

(Continued on page 30)

★ ★ ★

Front Cover: Adapted from the painting *B-52 H-Bomb Drop,* by Stanley Galli, member *Society of Illustrators.*

Strategic Air Command

. . . Its deterrent role

by Gen. Thomas S. Power
Commander in Chief, Strategic Air Command

THERE are some aspects of our deterrent role that are not too well understood by the public. You, the men and women of the Air Force, can be most helpful in promoting a better appreciation of the problems involved. As members of the Air Force you should know what deterrence means and what it takes to maintain deterrence in the face of advancing military technology. By understanding it, you can help others appreciate what deterrence means to this country's survival.

I am inviting your assistance because I am convinced that we can never solve the problems which the Nation faces unless the American people understand these problems and are willing to do something about them. This applies, in particular, to the controversial issue of how to prevent an all-out nuclear war.

Our National policy is based on the proposition that war is not an acceptable method for settling man's arguments and that every effort must be made to maintain the peace—on honorable terms. I emphasize the words "on honorable terms" because, obviously, we could prevent war by submitting to the Soviets and giving them anything they ask for, including our freedom. No hydrogen bombs have fallen on any of the countries that have given in to the Communists. But the citizens of these countries have learned that peace has no meaning if bought at the cost of all human rights and dignity.

Undoubtedly, the best way of maintaining peace is to take the profit out of war. In other words, we must convince the Soviets and their partners that the price they would have to pay for aggression against this

country or its allies would be far higher than they would be willing or able to pay. I am not saying that we can stay out of a war, in this or any other manner. But to do so is a tremendous challenge because, if we should get into a nuclear war, there would be no winners, only losers in varying degrees.

Therefore, SAC's first and foremost mission is one of deterrence, that is, to discourage aggression through the threat of devastating retaliation. Of course, SAC is not the only deterrent force within our military establishment. But there can be no doubt that it contributes, and must continue to contribute, the major share to the deterrent posture of the Free World. In fact, if war should be forced upon us today, over 90 percent of all the explosive power available to us and our allies would be carried in SAC bomb bays.

SAC Is a Tool

It must be realized, however, that SAC is, in effect, merely a tool which like any other tool, is useful only when wielded expertly by skilled craftsmen, namely, our statesmen. Hence, SAC's value as a deterrent to Communist aggression depends largely on the manner in which it is being used for that purpose by the men responsible for protecting the security of this country. The civilian authorities, in turn, must be guided by the wishes of the American people. That is the reason why SAC can accomplish its mission of deterrence only so long as the people understand and approve that mission, and are willing to back it up.

Let us briefly examine how well we are doing in this respect. To begin with, we must take into account that there is by no means unanimous agreement on the wisdom and need of our policy of deterrence. Those of us who value the preservation of our heritage higher than anything else, may take it for granted that these feelings are shared by all law-abiding citizens. Unfortunately, that is not always the case.

I am not referring to fellow travelers, subversives, and similar elements in this country. Despite their relatively small number, they represent a threat to the security of the Nation. But this threat is recognized and appropriate machinery has been created to deal with it.

Nor am I referring to those among our citizens who place their personal convenience, safety, and pocketbooks above the Nation's welfare. They, too, can do a great deal of harm, mainly because of their passive resistance to various phases of the defense program. There is no legal way of dealing with these persons and we must rely on all patriotic Americans to minimize the effect of their selfish actions.

Potentially far more dangerous, however, are those individuals and groups who actively oppose our policy of deterrence, either because they are self-styled idealists, or because they have become victims of the Soviets' propaganda tactics, or because they simply do not understand the problem. Many, if not most, of the individuals concerned consider themselves good citizens and actually believe that theirs is a worthy cause. Although they represent a minority and, by themselves, may be harmless, it would be a serious mistake to underestimate their damage to our deterrent posture.

AN AIR POLICEMAN *guards a B-52 at one of our northern bases. Wartime security in peacetime is a new idea but one in which SAC strongly believes.*

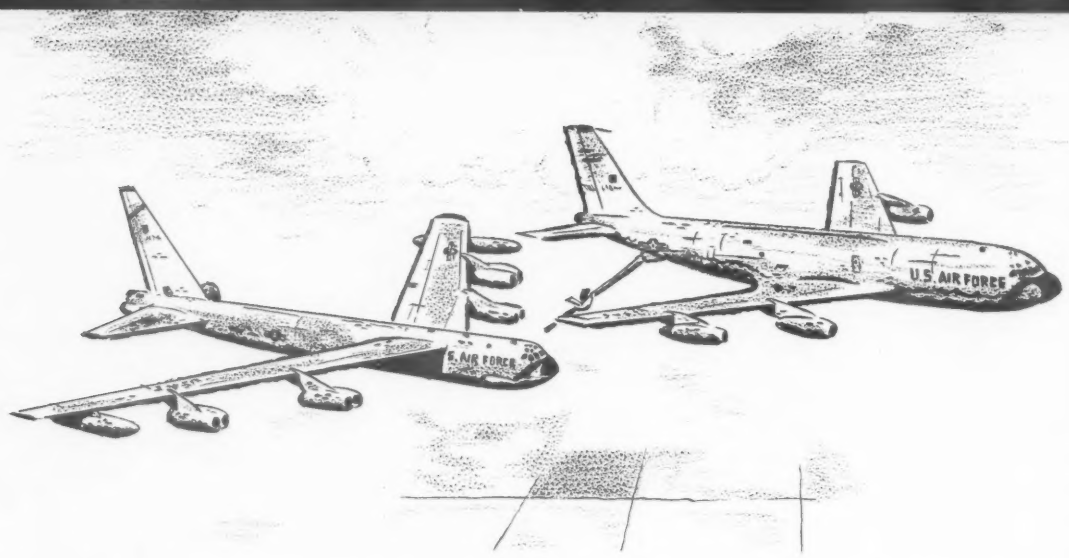
For the real danger lies in the groups and organized efforts which these people support and which, however unimportant they may seem, are often vocal and active enough to exert considerable influence. Whether or not the Communists have a hand in such groups is beside the point; in my opinion, they usually do, directly or indirectly. The important fact is that the misguided, misadvised, and misinformed among our citizens tend to weaken not only our capability to deter aggression but also our capability to defend ourselves against aggression if deterrence fails.

Despite the lack of logic, there are some who are swayed by the superficial appeal in the arguments of the pacifists, the appeasers, the advocates of disarmament without strict controls. The harmful effect of these arguments must be counteracted by emphasizing the fact that the Soviets have, time and again, proven their unshakeable determination to achieve their avowed goal of world domination by any means whatever. They have proven it in countless brutal actions in Poland, Hungary, the Baltic, and Balkan states. They have proven it by the fact that they are now controlling one-third of the world's people and one-fourth of its area.

U. S. Is Last Hurdle

The United States remains the major hurdle in the Soviets' path to their ultimate goal. There can be no doubt whatever that they are determined to remove that hurdle. If they cannot attain this objective through their cold-war tactics, they may have no choice but to resort to a hot war. That is why we must be prepared for an attack on us once they are convinced that they can do so successfully and with impunity. The gravity of this threat should be obvious to anyone who has followed the rapid growth of the Soviets' military power since the end of World War II.

Illustrations by MSgt. Tom Heard, Hq. SAC



THE *KC-135* TANKER *extends the range of today's aircraft, can rendezvous with thirsty jets at a compatible altitude, saving precious flight time. SAC bombers can reach targets anywhere in the world.*

We must remember that plans for an attack on the United States were not included in the original Communist program for world conquest. Lenin, who established that program, realized that military aggression against this country was out of the question in those days. Instead, his plans called for the conquest of Europe and adjacent Asian countries through the traditional Russian strategy of land war. He expressed the conviction that, once that objective had been achieved, the United States would no longer be a problem, because political and economic isolation, propaganda, and internal subversion would make it fall into Russia's lap like an overripe fruit—to use his own words.

In accordance with these plans, Lenin's successor, Stalin, utilized the experiences and technological advances of World War II to build up a powerful and modern war machine, still with the emphasis on the ground forces. But after his initial gains in Asia and Eastern Europe, his scheduled march into Western Europe bogged down because of factors not anticipated in Lenin's program, such as the Marshall Plan for economic recovery and the Strategic Air Command.

After World War II, it had become increasingly apparent to the American people that the Soviets constituted a growing threat to the newly gained peace and that, in order to meet that threat, we would have to take a leading part in the defense of what was left of the Free World. This required a long-range strategic capability, and it was for this reason that a special organization was established in March 1946 to carry out the Nation's strategic mission. That organization was the Strategic Air Command.

By today's standards, SAC's initial organization and striking power were relatively small. But even its propeller-driven bombers and limited supply of early atomic bombs represented an effective deterrent. No other nation could match those weapons or was expected to match them for some time, least of all industrially backward Russia which, moreover, had suffered heavy and crippling damage in World War II.

Despite Russia's rapid recovery, Stalin did not dare to move against Western Europe. Since 1948 we have been committed to the defense of our western allies, an attack on any one of them would have been followed immediately by a SAC bomber attack on the Soviet Union. Such an attack would have meant certain and decisive defeat to the Soviets because they had no effective aerial defenses against SAC's bombers which could strike from a growing number of bases ringing Russia. In this connection, our enemies and even some of our friends forget that, if we had had any aggressive intent against the Soviets, we could have destroyed them almost at will in those days.

Soviets Advance

But our atomic monopoly did not last for as long as we had anticipated. The Soviets pursued an all-out effort to narrow the gap between their military capabilities and ours, resulting in the early development of their first hydrogen bomb. In view of this unexpected Soviet achievement it was generally realized that our continuing supremacy in military technology was no longer a foregone conclusion. Still, many of our citizens failed to comprehend that, all of a sudden, a nuclear attack on the U. S. had become a distinct possibility.

The Soviets did not incorporate this possibility in their plans until after Stalin's death in 1953 at which time there was a drastic revision in Soviet strategy. This new strategy, which has changed little since, assigned top priority to the possibility of a surprise attack on the United States, evidently designed to destroy our war-making capacity and, primarily, the retaliatory threat posed by SAC's strike forces. Actually, this strategy is still in line with Lenin's program. Once our nuclear forces have been wiped out or neutralized, the Soviets can proceed with their original plans for the

conquest of Western Europe, without fear of our nuclear retaliation.

Frank statements and publications by Soviet political and military leaders, as well as the nature of their present military programs make it quite clear why and how the Soviets plan to eliminate the offensive power of the United States. Therefore, we must exercise extreme care against entering into any but the most carefully considered agreements lest we might ourselves destroy what the Soviets, so far, have been unable to destroy through a costly war.

It is immaterial whether the Soviets would abide by bans on nuclear weapons; past experiences indicate that the Soviets would find a way of violating them as they have broken hundreds of other agreements. The point is that *we* would honor our commitments and, thereby, might surrender Western Europe and other allied countries to the Soviets. It should be obvious that, without our nuclear weapons, we could never match the Soviets in conventional weapons and manpower.

Similar considerations apply to all other unilateral agreements which would result in reductions in military capability. As there would be invariably a greater reduction in our deterrent strength than in the Soviets' offensive strength, such agreements would invite rather than discourage aggression. Indeed, we cannot afford to further reduce our dwindling deterrent margin—whether by agreement or default—because the Soviets already have the capability to launch a nuclear attack on this country, using their long-range bombers and, perhaps, some missiles.

Bombers Still Deter

Our chances of discouraging a Soviet bomber attack are still quite good. Our present air defense system could provide enough warning of such an attack to permit large numbers of SAC bombers to be launched for the counterattack before their bases might be struck. But since SAC must be prepared to react with a minimum of warning time, it maintains a certain percentage of its strike forces on a continuous 15-minute alert. Because of the growing problem of insuring adequate warning, I consider the alert system the very backbone of SAC's deterrent strength.

Under this system, alert crews at bases all over the world are prepared to go into action at a moment's notice. They are thoroughly familiar with their targets, their routes, and their split-second schedules. Detailed and up-to-date information on every phase of their missions is provided through the unique combination of SAC's worldwide intelligence and weather systems, its global communications network, and a centrally controlled organization designed specifically for the conduct of strategic air operations.

Within seconds after warning of an attack was received at SAC headquarters at Offutt AFB, near Omaha, Nebr., alert crews everywhere would race to their aircraft which are fueled and loaded with bombs, ready to go. A few minutes later, the first bomber would be on its way to its predesignated target. Soon, the entire alert force would be airborne, and with every minute of warning beyond 15 minutes, additional SAC bombers would follow in rapid succession.

Despite the improvements in the Soviets' aerial defenses, I am confident that a very high percentage of the SAC bombers would penetrate to their targets. SAC's global organization, its singular facilities for aerial refueling, and the extensive network of bases represent vital advantages which the Soviets do not possess. That is why the alert force can be expected to retaliate with telling results, no matter how massive and unexpected a Soviet bomber attack might be. If the alert force is large enough and if it is assured sufficient warning, I am confident the Soviets will be strongly deterred from challenging it.

Compressing Time

To appreciate the scope and complexity of the alert system, it must be realized that, never before in history, has a peaceful nation such as ours been prepared to go to war within 15 minutes. This is a dramatic illustration of the fantastic reduction in time—action and reaction time—which has been brought about by the hydrogen bomb and modern delivery systems.

The compression of time is another and increasingly important aspect of deterrence that is not too well understood. Many people still live in the past when even a successful surprise attack—like the one on Pearl Harbor—gave the victim months and perhaps years to mobilize for the counterattack. Today, we may have only a few hours at best and, conceivably, as

RAZOR SHARP *SAC navigators are required to put bombers within 15 miles of any target via celestial navigation. Other aids may be disrupted during wartime.*

VOICE CONTACT *with SAC aircraft anyplace in the world is possible via the command's communications system.*

little as 15 minutes—the minimum needed to launch SAC's ground alert force.

But a period is approaching rapidly during which we may not get any warning at all. This will be the case if the Soviets succeed in accumulating a sufficient stockpile of ballistic missiles to venture a missile attack, before we have in operation reliable missile warning systems. Such systems are now under development and, when perfected, are expected to give us the required 15 minutes of warning of a missile attack. For the time being, however, we have no way of obtaining such warning or defending ourselves against missiles.

Conversely, the Soviets have long recognized the tremendous value of the ballistic missile to an aggressor who plans a surprise attack. Although we know little of their actual progress, they might achieve the capability to launch a missile attack sometime *before* we have any missile warning system. This will be a most critical time period, because the Soviets may feel confident that, through a successful missile attack, they can destroy SAC's strike forces on the ground and, thereby, escape retaliation.

Airborne Alert

SAC's problem, then, is to insure the survival of its alert force on the assumption that there will not be any warning at all. Surprisingly enough, this complex problem can be solved through a basically simple expedient, namely, by keeping the alert force in the air. Obviously, an airborne alert force needs no warning whatever, will survive even the best planned missile attack, and needs no more time to start the counterattack than it takes to change course to the target.

SAC has tested the airborne alert principle very thoroughly and found it to be entirely feasible and practical. In contrast to other types of countermeasures which normally require years of extensive research and development, the airborne alert can be implemented with existing and operationally proven equipment.

Nevertheless, it must not be concluded that SAC can convert from a ground alert to an airborne alert overnight and maintain a sufficient number of bombers on air alert indefinitely without lengthy preparations. However simple and practical this tactic may be, it entails unprecedented demands for supply, maintenance and, most importantly, skilled personnel. To meet these demands, without impairing the day-by-day combat readiness of SAC, will take many months of carefully planned efforts.

But once the airborne alert has been implemented, it can be maintained continuously and for any length of time. In this manner, it can buy back whatever time we may have lost in keeping up with the Soviet's growing ballistic missile capability. It is reasonable to expect that, eventually, we will have missile warning systems which can be depended upon to provide sufficient warning to warrant return to the ground alert. Until then, however, the airborne alert force, if large enough, would be our best and, probably, only answer to the missile threat in the critical years ahead.

This should not imply that SAC's deterrent strength will continue to be rooted entirely or mainly in its manned bombers. SAC's strength is rooted in the unmatched combination of its global organization, its nucleus of dedicated professionals, and its highly advanced weapon systems. Since SAC can maintain its day-to-day combat-readiness only with well-proven, operational equipment, the emphasis today is still on strategic bombers. Tomorrow, it will be on strategic missiles, and, conceivably, on strategic spacecraft in the more distant future.

SAC Missiles

SAC's missile force, which is still in its initial stages, will be expanded as rapidly as possible so that it can effectively supplement and complement the manned bombers. Ballistic missiles, e.g. the *Atlas, Titan,* and *Minuteman,* in increasing numbers will be widely dispersed in well protected sites or on mobile platforms to enhance their survivability. With adequate quantities of both bombers and missiles in its operational inventory, SAC will have the highly flexible and versatile mixed force which it needs to perform its deterrent role as successfully in the future as it has in the past.

But deterrence does not come cheaply. Its cost will continue to rise as advancing technology and growing

complexity will demand ever higher plateaus of performance of both men and material. Here again, it is up to the American people to decide how effective a deterrent they want SAC to be. I appreciate that this is not an easy decision to make, because the public hears many conflicting opinions as to the types and quantities of military equipment needed to insure the Nation's security.

I firmly believe in the democratic way of bringing these conflicting concepts out in the open. This gives the public the opportunity to hear all sides before deciding which course of action to support. I have every confidence that sound logic will stand up and that the right decisions will be made.

Victory or Defeat

The decisions which we as a Nation must make today may well spell the difference between honorable peace and devastating war, between survival in victory and doom in defeat. Therefore, the people as a whole must show a greater interest than ever before in the problems involved and learn enough about them to understand them. Even the impractical dreamers and unrealistic idealists among us must be made to accept the fact that the threat to our survival is very real and growing from day to day. Our capability to deal with that threat must grow commensurately.

This is not just a matter of money, because money alone cannot buy the kind of lasting peace we want. Nor can we gain and maintain such a peace through military power alone. There is no such thing as a nuclear stalemate which can be preserved indefinitely, merely by allocating more funds to the Armed Forces.

As I stated earlier, our military forces represent deterrent capability only to the extent to which they are used for that purpose by the civilian authorities, with the full backing of the people. This Nation solved the Lebanon and Quemoy crises, and undoubtedly can solve similar crises, without precipitating an all-out war, because of an understanding of the issues at stake as well as our unmistakable resources to fight such a war.

When our government alerted more SAC bombers than ever before to help protect our interests in Lebanon and Quemoy, these aircraft did not have to drop a single bomb because of their evident readiness to do so. Thus, MILITARY STRENGTH FOR WAR BECOMES POLITICAL STRENGTH FOR PEACE WHEN IS IS SUPPORTED BY THE SUM TOTAL OF EVERY DETERRENT INHERENT IN A STRONG AND UNITED NATION.

For deterrence is more than bombs and missiles and tanks and armies. Deterrence is a sound economy and prosperous industry. Deterrence is scientific progress and good schools. Deterrence is adequate civil defense and a stable professional military force. Most of all, deterrence is the determination of the American people to prevent and, if necessary, fight and win any kind of war, whether hot or cold, big or small.

So long as our citizens demonstrate such determination and back it up with both words and deeds, I am confident that SAC's deterrent role will accomplish its purpose—to help maintain peace on our terms.

Minuteman

Missile with a Mission

"A *Minuteman* force composed of both hardened and mobile sites will greatly increase the security of our deterrent posture."

So stated General Thomas D. White in an address before the NATO Parliamentarian Conference held last November in the Nation's capital. He referred to the Air Force's newest intercontinental ballistic missile—a three-stage, solid-chemical-propellent-powered vehicle capable of ranging more than 5,500 miles at speeds in excess of 15,000 m.p.h.

At the time he spoke, a full size model of the *Minuteman* had been successfully fired from an underground installation, while reentry vehicle components and tests of prototype inertial guidance systems had proved successful.

Yet what are the strategic factors of the *Minuteman's* employment which moved the Air Force Chief of Staff to assert that such a force "will greatly increase the security of our deterrent posture?" In the same address, General White answered this question.

"Long-range ballistic missiles undoubtedly represent one of the most significant developments in the history of warfare. Their ability to penetrate deep into enemy territory, their short time from launch to target, and their current invulnerability while in trajectory make them the most formidable weapons of all time.

"Nevertheless," he continued, "despite the many advantages of missiles we feel that our total operational effectiveness can be maintained at the highest level only through the use of mixed forces—that is, forces of manned and unmanned systems. Each of these systems makes its own specific contributions to our overall operational capability. Manned aircraft, for instance, provide a high degree of tactical flexibility within our combat forces. Manned systems can conduct repeated sorties. They also can carry several weapons and hit more than one target per mission. Furthermore, once launched they are not irrevocably committed—they can be recalled or diverted if necessary."

A second generation ballistic missile, the *Minuteman* is expected to be lighter, smaller, and simpler than the first generation liquid-fueled ICBMs, as well as somewhat less expensive. Because of its solid propellant, it can be stored or kept ready in launch position for strike-back firing at a moment's notice.

Development of mobile *Minuteman* units, mounted on missile trains constantly on the move at varying speeds and following an unpredictable travel pattern, is under study.

Aerospace power's beat is up and way out,

but the Air Force still hopes the Army will hurry up and

DIG TI

by 1st Lt. Brian T. Sheehan, *Airman Staff*

IF you are assigned to Thule AB 10 years from now you may be living in a snug, comfortable-as-home ice cave 100 feet under the Greenland ice cap.

This is the prediction of scientists who have tunneled a huge cave 1,500 feet into the Greenland ice cap 14 miles from Thule AB. The ice cave may someday house hundreds of airmen and help solve the Air Force's winter resupply problems in the Arctic.

The ice cave, dubbed "the world's largest home freezer" by Thule personnel, is currently being studied by U. S. scientists as a possible under-ice base, and storehouse for food, petroleum, equipment, and other supplies essential to year-round operations in the North.

Scientists began digging the deep ice cave two years ago. Now the cave has grown from a shallow hole in the ice cap's side to a wound a quarter-mile deep. Its entrance is 12 feet high, 30 feet wide. Six rooms, some 200 feet long, branch off the cave's long main corridor.

Largest tunnel created inside the Arctic ice cave is 60 feet wide and 300 feet long, but scientists say this width can be expanded another 40 feet without introducing additional supports to hold up the ice roof. Caves this wide could accommodate many of the Air Force's supersonic fighters and fighter-bombers. B-47s and B-52s, because of their large size, would not fit in an excavated ice cave, but the B-58 *Hustler* with a wing span of 56 feet, 10 inches could be kept under the ice cap, hidden from enemy reconnaissance.

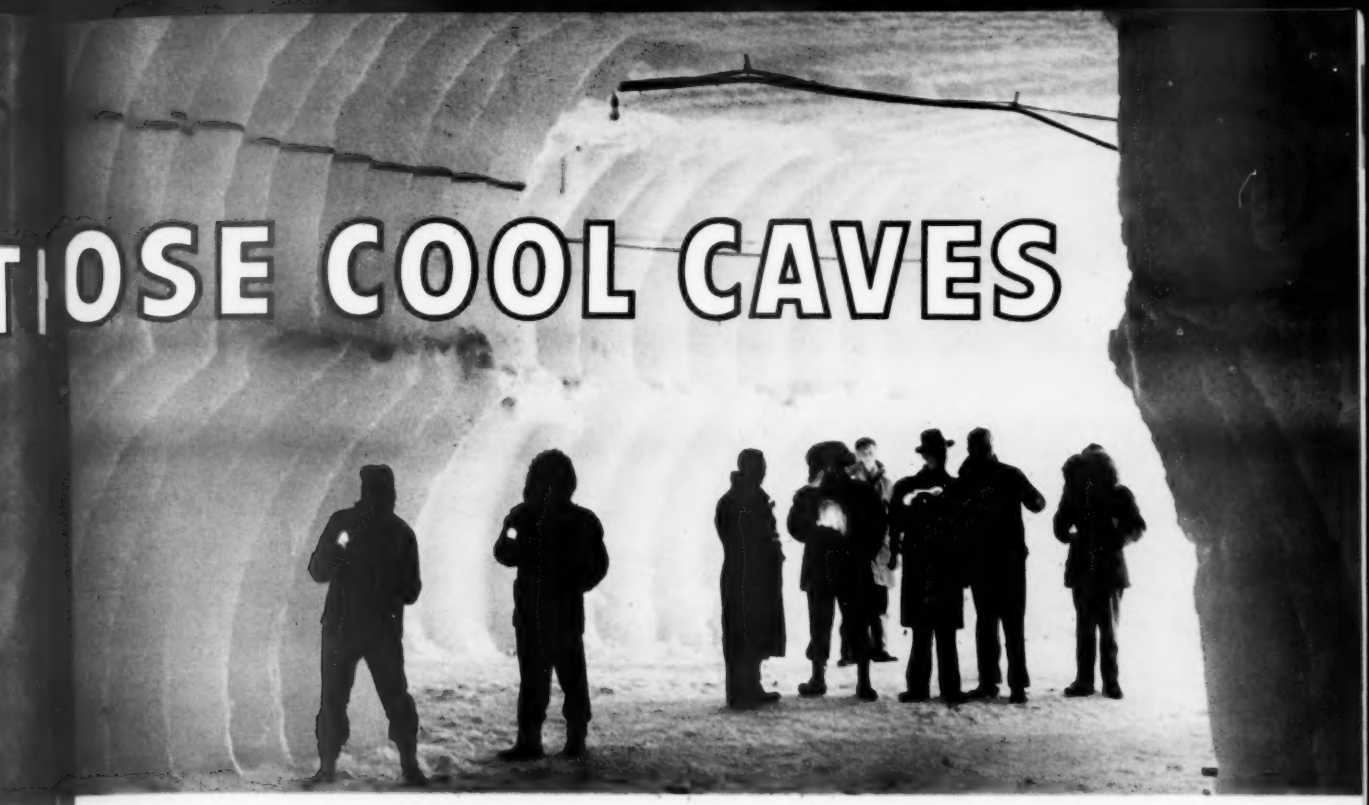
The Greenland ice cap, one mile thick, covers some 700,000 square miles and could be honeycombed with ice caves which might be used as atomic-bomb proof military command posts. Entire bases, scientists say, could possibly be built there.

If bases were built under the ice cap, ventilation and heat would have to be supplied. The caves would also have to be insulated and exhaust vents piped to the surface.

How bomb proof these ice cave bases would be is speculative, but scientists say a direct hit by nuclear weapon would not necessarily be disastrous. At a depth of 100 feet an ice cave is relatively safe from nuclear blast, unless it is a surface blast which causes a tunneling effect under the ice.

DURING SUMMER *conducted tours are held every Sunday afternoon for Thule-based personnel. More than 2,000 airmen and officers visited the ice cave, located 14 miles from Thule AB.*

TIOSE COOL CAVES



Since temperatures inside the ice caves remain a constant 17 degrees year-round, aviation fuels could be stored in open pits in the caves.

The futuristic ice caves have other potential uses, too.

If a cave was expanded to run the full length of the ice cap, from Thule AB south 1,500 miles to the nearest ice-free port, the Air Force would have no Arctic resupply problem. An underground railway, starting at the ice-free port, could haul equipment to Thule AB where the port is open but 10 weeks a year.

The world's surplus food supply could also be stored under the ice cap until needed by disaster or famine stricken countries.

Certain problems, however, have caused some scientists to minimize their predictions about the ice cave's potential. Last year in September Army scientists placed small vehicles and other equipment in the cave, then sealed it. In spring they re-opened it, discovered that ice cap pressure caused the ceiling, floor, and walls to close in slightly.

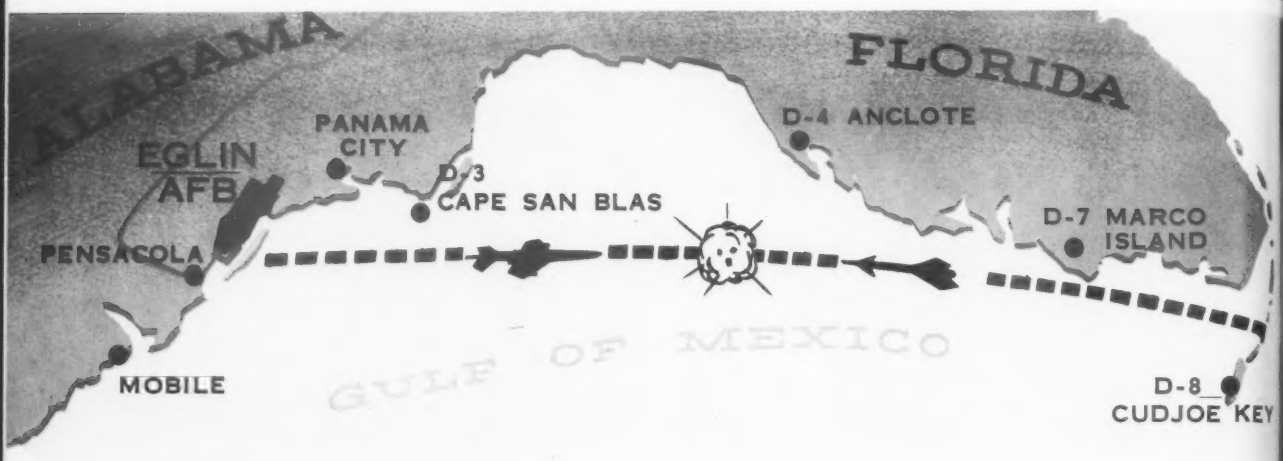
But the ice caves can be prepared quickly and economically. Last year U. S. Army engineers dug a tunnel 30 feet wide, 1,200 feet long, and eight feet high in 12 eight-hour shifts. A soft-coal mining machine chipped off the ice. It was then hauled out of the cave on conveyor belts. The cost was small.

Whether we will ever have a practical use for the ice caves remains to be seen. The Army Polar Research and Development Center at Camp Tuto, Greenland, is the U. S. military agency charged with studying their possibilities. If these scientists decide it is practical and economical for the Air Force to go underground in the Arctic at Thule, your next assignment may be under the ice cap in a warm, livable cave.

AERIAL PICTURE *of "cool caves" shows trucks on road leading to entrance of cave. The cave cuts into the side of the Greenland ice cap.*

A CONVEYOR BELT *carries chipped ice from inside the cave to outside. Ice cave studies take place in summer when sun shines almost 24 hours a day in northern Greenland.*

Three-sided shooting



HIGH above the watery wilderness of northwest Florida's sprawling 465,575-acre Eglin proving ground, a B-52 bomber carries a harpoon-shaped air-to-air missile slung under its wing for a firing run.

At down-range tracking stations, stretching from the north shore of the Gulf southward to the Florida Keys, "bird watchers" get ready. Today's firing will test the reliability of the GAM-77 *Hound Dog*, a supersonic, nuclear missile that can be launched by a B-52 hundreds of miles from heavily defended targets.

Countdown began shortly after midnight. Following arrival of the *Stratofortress* crew, a final check was made to insure that all data-gathering equipment was functioning. Takeoff was just before dawn. When the count reaches zero, the words "missile away" boom over the loudspeaker and the *Hound Dog* streaks away from the B-52. Minutes later the coded command "missile impact" signals a successful firing.

This test—designed to prove the deadly accurate *Hound Dog* can't be deterred from its preselected target by enemy electronic jamming—is a captive dry run at the Eglin Gulf Test Range. But it demonstrates the precision tracking capability of EGTR, the Air Force's new test range for short-range missiles, longer-range air defense weapons, and space probes in the unlimited regions above the Gulf of Mexico. EGTR becomes fully operational sometime in the near future.

The Eglin Gulf Test Range would have pleased the late Robert "Believe-It-or-Not" Ripley. Its amazing equipment includes precision and drone control radars, telemetry receiving stations, a communications net linked by microwave and tropospheric forward scatter, radio frequency monitors and interference control (false signals may come from lightning bolts, freakishly reflected waves from a taxicab network, or an electric refrigerator), phototheodolite tracking cameras, and a telescopic photographic recorder that can take a picture of a coke bottle eight miles away. The Florida coastline makes this an ideal test arena where you can take a three-sided look at a missile and obtain accurate data by triangulation.

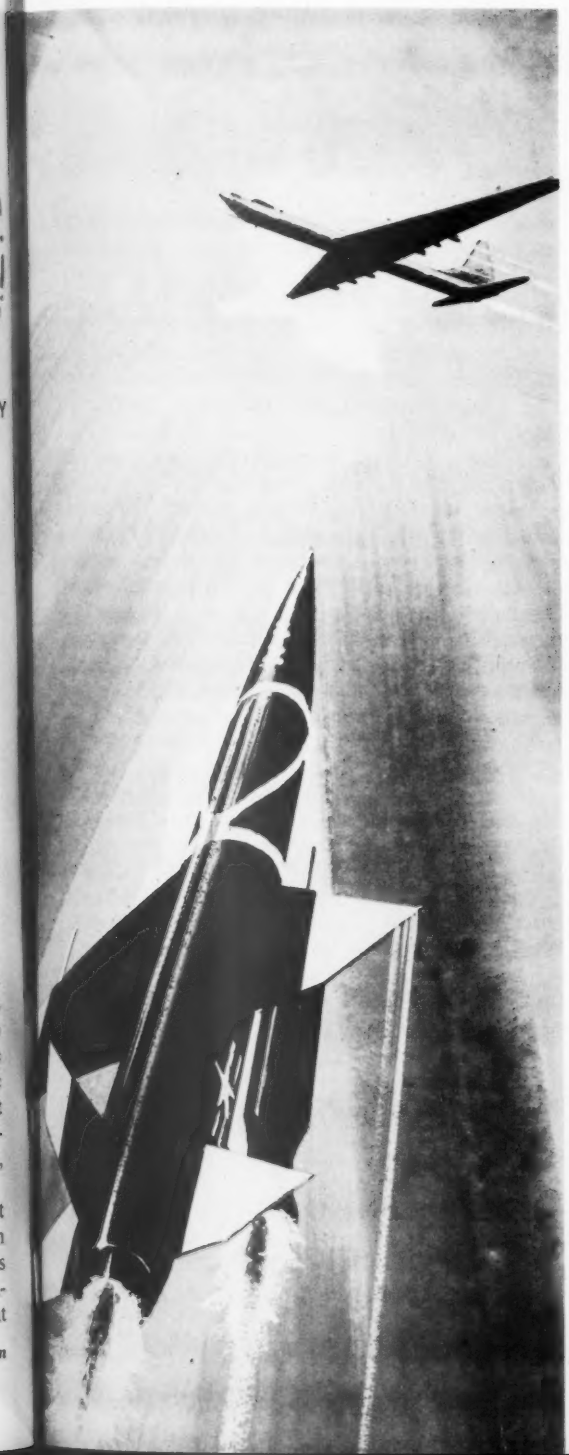
To find out how Eglin's unique flyway operates, let's watch a typical *Bomarc* mission over EGTR from start to finish and see how the USAF's supersonic ground-to-air defense missile intercepts and destroys an "enemy" aircraft before it reaches the intended target area.

The interceptor missile will be launched from Santa Rosa Island, an overgrown sand dune nearly 50 miles long, and only a quarter of a mile wide, adjacent to Eglin, just off the Florida coast. Today's test will be conducted under control of the SAGE (Semi-Automatic Ground Environment) system at Gunter AFB, Ala. It will evaluate the *Bomarc's* flight and intercept capabilities, help find solutions for engineering deficiencies, and train airmen for tactical *Bomarc* bases.

Master control of the entire range is exercised at Site A-20, five miles west of Hurlburt Field (Eglin Auxiliary No. 9). Here are the thousands of tubes and circuits that form the "master time signal generator." This is the electro mechanical clockwork that

gallery

by Dave Karten, *Airman Staff*



USAF's newest shooting gallery for short-range missiles and rockets will strengthen our defenses; help America keep pace with the Nation's missile needs.

provides the correct time to the thousandth of a second so that when telemetry data is collected from all the film, tape, pen recorders, oscillographs, and cameras up and down the 450-mile range, it can be correlated with absolute precision to give the story of just what happened when. The range control center has FPS-16 radars for space position data, drone plotting boards, optical tracking equipment, and range safety facilities.

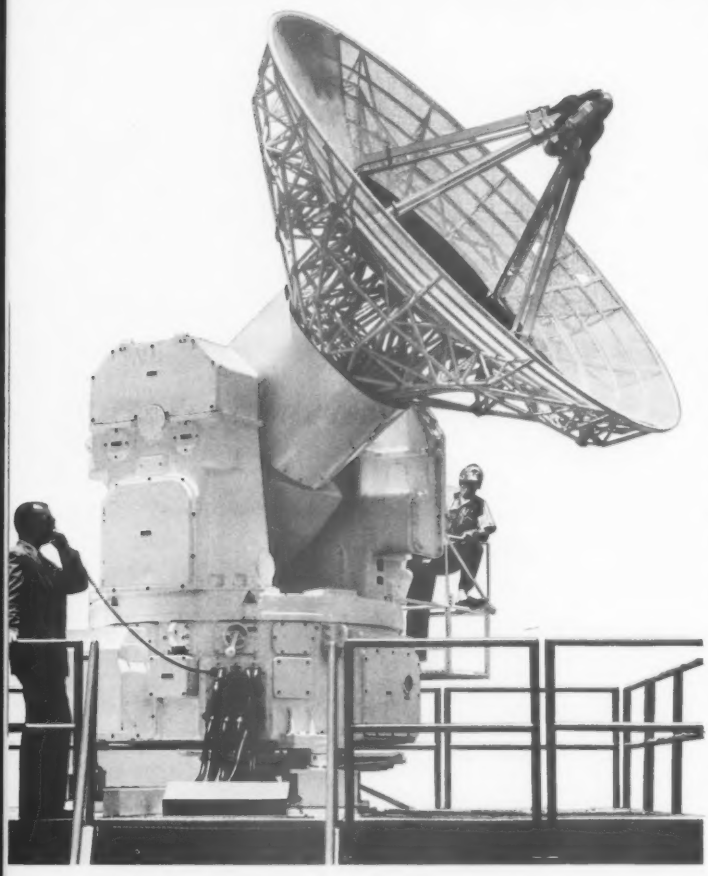
Secondary range control at Site A-19 on Eglin AFB, collects information you must have to evaluate test results. For instance, Site A-19 will pass on to the down-range stations the coordinates they must have in order to know at what elevation, azimuth, and range to look for and "acquire" the missile. Two other sites on nearby Santa Rosa Island play an important part in today's test. Site A-3's UHF and command guidance equipment will carefully track the drone while Site A-6 handles the telemetry reception.

Four other down-range stations point their parabolic reflecting antennae and radar dishes overhead. Their mission: to monitor the drone and missile as they whistle by, destroy them if their course imperils humans, and pick up information telemetered to the receivers.

Hours before launch time the radars and Eglin boats begin a steady scanning and patrol of the gulf area, flash back to central range control the position of any ship that may be in the area.

At the tracking sites technicians check dozens of telemetry receiving boxes that are stacked like file cabinets while mobile vans monitor the flock of special

Courtesy Thiokol Chemical Corp.



ANTENNA *on a search radar unit tracks a* Bomarc *missile as it hurtles downrange to destroy its target over the Eglin Gulf Test Range. This radar unit is but one of many tracking, data-gathering and drone-control radars located on the extensive multimillion-dollar Gulf range.*

telemetering frequencies. The missiles and drones transmit on these frequencies coded reports on hundreds of tiny delicate instruments that tell us what we most want to know about the bird's behavior.

Engineers meticulously check out the more than 300 circuits in the extensive communications system that connects all the instrumentation locations, permits centralized control of all operations from Eglin and rapid transmission of data from remote locations back to the processing center.

Without the network of radio and radar, microwave and tropospheric forward scatter, reels of film and miles of sound tape showing missile and drone position and speed, and the numerous temperatures, pressures and flow rates inside the "birds"—without all this, the Eglin Gulf Test Range and all its gifted personnel would merely be conducting an expensive Fourth of July celebration.

When the range safety officer has determined—from patrol boats and radars scanning the Gulf for the location of ships and military air traffic in the area—that it is clear to fire, and after all sites report "ready to go," the FPS-16 radars are locked on the missile in the launch pad and the countdown proceeds.

From the Venice, Fla., Municipal Airport on the Gulf Coast, a 22,000-pound supersonic *Regulus* missile drone is fired and roars northward at Mach 2 at 60,000 feet.

At Gunter AFB, Montgomery, Ala., more than 400 miles from Venice, airmen track the speeding drone's path on their radar scopes while SAGE electronic computers plot its interception.

When the SAGE system goes into operation, target information is furnished by search radars of the Air Defense Command. From SAGE, the commands go by telephone lines to the Ground-to-Air Transmitter (GAT) at Site A-20, 150 miles away. EGTR's precision tracking radars are used then to gather data for missile performance evaluation.

At its Santa Rosa Island launch site the *Bomarc* "gets the word." Inside the 47-foot interceptor missile's forward section the guidance system absorbs launching instructions transmitted to it from the Gunter SAGE system.

The *Bomarc* jerks to life on internal power, starts its subsystem and completes its final check automatically. Then, upon command from SAGE, the roof sheltering the missile slides back, the launcher-erector raises to a vertical position, then drops back empty as the bird's ramjet flares are ignited. Five seconds later a burst of fire and smoke, accompanied by a rush of thunder, envelope the *Bomarc's* tail as the liquid boost rocket engine ignites. A blinding eerie light penetrates the launch area and seconds later, the deadly interceptor eases off its launch pad down an anticipated flight path of 135 degrees southeastward, belching a seething white hot tail of exhaust gas. If "eyeballing the missile" on the wire "skyscreen harp" shows its path to be erratic, the missile safety officer will press the "destruct" button on climb-out. The bird can also be destroyed from the launch pad or from any one of the down-range sites. Once the missile has left optical range, FPS-16 radars continue to provide tracks for range safety.

The interceptor leaps vertically from its shelter, executes a half-roll and, as it reaches cruise altitude, heads toward the *Regulus* drone some 300 miles away. Gunter's SAGE, monitoring the flight paths of both birds, transmits flight instructions to the *Bomarc*, now on its ramjet power and closing rapidly at tremendous speed with the oncoming drone. At a predetermined point, the target seeker in the *Bomarc's* nose begins to probe, searching for the "enemy" in the vast void of sky.

While the missile is in flight, electronic eyes at Site A-19, and later, radars at the other down-range sites, provide computers at Eglin with information on the speed, altitude, and location of the *Regulus* drone. The Ground-to-Air Transmitter (GAT) at Site A-20 feeds

CAPT. SHELDON I. VERNON, *site commander of Station D-3, on roof of site's radar building.*

SAGE data to the *Bomarc* guidance system until the missile starts its terminal dive on the drone target, at which time the interceptor missile operates on its own target-seeker system.

At an altitude above 40,000 feet and some 160 miles from the *Bomarc* launch site, it locks on, automatically drops all link with SAGE and follows the target-seeker's commands to a Kamikaze-type suicide dive on the target—a direct hit collision that destroys both the *Bomarc* and its prey. Elapsed time between launching and interception was a matter of minutes.

During these few minutes at each down-range site the beeps, whines, and whistles from the telemeter radios, and the blip-blip rhythms bouncing onto radar screens from the network of grotesque antennae, are translated into readable data by "reduction of telemetry." The skilled technicians and engineers who have been manning the buttons, keys, switches, knobs, cranks, valves, tubes, and dials down-range, have sped the information northward to Eglin for evaluation.

From the Florida Keys Site D-8 at Cudjoe Key, the data flows back up the Gulf to Marco Island (D-7), a distance of about 90 miles, by forward scatter. From there a chain of five microwave relay stations carry it to Anclote (D-4). Forward scatter is again used to transmit from Anclote 180 miles over the Gulf's northeast corner to Cape San Blas (D-3). A string of three microwave stations then relay the information to Eglin Gulf Test Range Control Center at A-20.

The forward scatter communications system takes advantage of the refractory powers of the troposphere (all the atmosphere below the stratosphere). An antenna is tilted to a predetermined angle and communications signals are beamed up to reflect off dust particles in the troposphere at about a 50,000-foot altitude to be received at some distant point.

Over radio-telephones and intercoms crackle the answers to dozens of questions that we must know to successfully fire tomorrow's missiles.

Long before the first *Bomarc* launched from Santa Rosa Island blasted across the Eglin Gulf Test Range on January 15, 1959, using only limited range capability, a variety of Air Force missiles, rockets, and space probes utilized EGTR's extensive instrumentation to help maintain qualitative superiority of U. S. weaponry.

EGLIN GULF TEST RANGE *will also be used for test of Air-Launched Ballistic Missiles (ALBM) like the Martin-built, two-stage research missile, fired from a B-47 last fall into the vicinity of the earth-orbiting* Explorer VI.

HOUND DOG *missile team personnel man banks of special consoles to follow simulated flight of the GAM-77 during combined systems checkout.*

The Air Proving Ground Center in sunny missileland has been in the missile testing business since 1946 when the First Experimental Guided Missile Group, activated at Eglin that year, became the pilot guided missile organization in the U. S. defense establishment.

The first modern missile tested at Eglin was the Martin *Matador* in 1954. Other tests have included the *Mace* and guided air rockets. The first GAR to undergo test was the Hughes *Falcon* in 1955. Another potent air-to-air rocket, the GAR-8 *Sidewinder* was tested during 1957. The same year APGC tested the *Genie,* first air-to-air rocket to carry a nuclear warhead, and the Bell *Rascal* air-to-ground missile. Other tests have included the *Hound Dog* and the *Quail,* a decoy missile whose flights are intended to confuse enemy radar and total defense.

When the range is fully operational from the Gulf to the Keys, it will be used to conduct tests of a whole family of short-range missiles—everything from the *Falcon, Sidewinder,* and *Quail* to solid propellant boosters and Air-Launched Ballistic Missiles like the recent ALBM shot from a B-47 bomber into space near the *Explorer VI* "paddlewheel" satellite. The ALBM officially known as a "rocket-powered air-to-surface missile" would be used for long-range attack.

The Eglin Gulf Test Range's contribution to aerospace research and development will be considerable. Here in the vast Gulf area with three-sided vantage points short-range missile testing will be conducted without interfering with the long-range ICBM firings on the Atlantic Missile Range—Cape Canaveral's 5,000-mile shooting gallery that stretches to Ascension Island, or the Pacific Missile Range with its king-size reach from Vandenberg AFB, Calif., to Wake Island and beyond.

Recent addition of high-gain telemetry antennae and the FPS-16 radar make the Gulf range ideal for vertical probes.

Last June the Air Force fired a two-stage test rocket from Santa Rosa Island to an altitude of 80,000 feet. The payload was an instrumented package containing deceleration devices. Aided by floatation gear and a homing beacon in the package, Eglin boat crews were able to recover it eight and a half miles off shore.

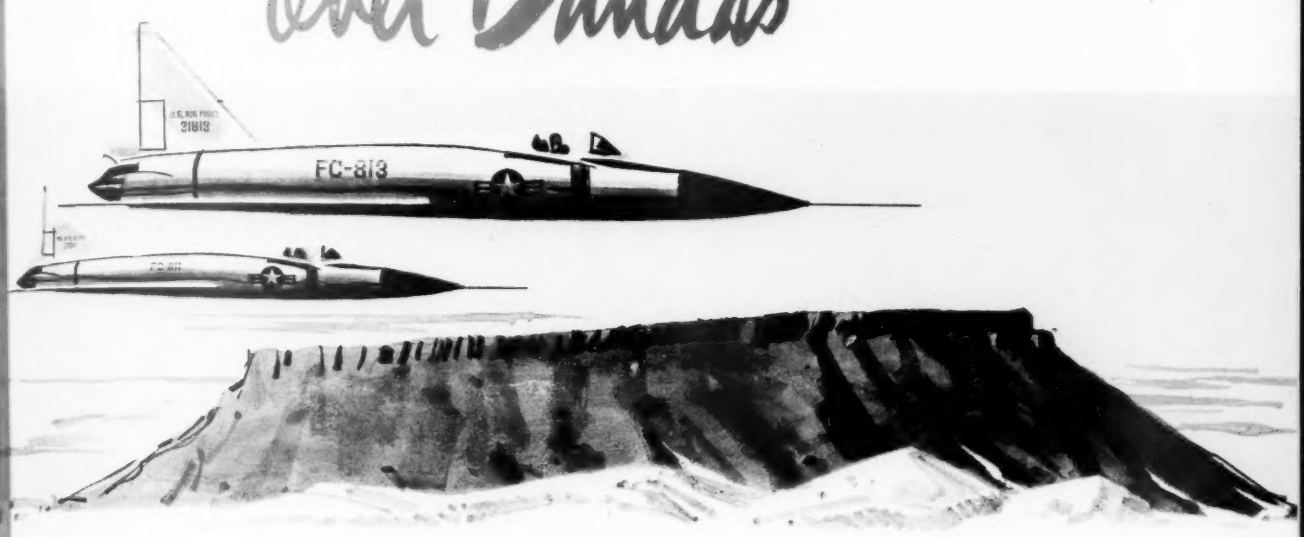
In the *Firefly* series of 12 shots conducted last fall to investigate radio propagation in the ionosphere, at altitudes of 75 to 100 miles up, the EGTR proved its value as a facility for conducting vertical probes. Thirteen *Nike-Cajun* rockets produced multi-colored clouds and obtained valuable information now being studied by scientists from the Air Research and Development Command's Air Force Cambridge Research Center.

Another series of chemical cloud experiments over the Eglin Gulf Test Range, designed to gather additional data on long-range communications and high-altitude research, is planned for this spring.

This year the $50 million EGTR testing arena will be poised and ready for full-scale operation. Then the Gulf range will play a vital role in helping develop the Nation's pushbutton defenses.

Today's missiles are the linear historical descendants of spears and arrows. In the land where Muskogean speaking Choctaws, Creeks, and Chickasaws fought with arrows in 1200 A.D. the USAF is now testing another kind of missile, larger and faster but designed basically for the same purpose—self-defense.

Daggers Over Dundas



Honed to a razor edge by constant training, Thule's fighter-interceptor squadron performs a rugged, dangerous, and vital mission.

by 1st Lt. Brian T. Sheehan, *Airman Staff*

IN building 605 on the Thule AB flightline a handful of F-102 *Delta Dagger* "alert" pilots and maintenance men of the 327th Fighter-Interceptor Squadron relax in 70-degree comfort.

Outside their warm hangar minus-30-degree Arctic winds whistle across Wolstenholme Fjord, and howl around table-topped Mount Dundas, Thule's famous landmark.

The men casually sit and play cards, watch television, and chat about their homes and families 4,000 miles away. Their preoccupation with self-amusement is misleading, for in three minutes' time these pilots can be airborne and heading for their targets if we should ever be attacked by a bomber fleet coming across the Eastern Arctic toward America.

So formidable is the 327th FIS's job—the air defense of the Arctic near Greenland—that ADC officials once said it was nearly impossible. But this squadron, which arrived at Thule AB from George AFB, Calif., in July, 1958, and its predecessors have proved that safe, supersonic jet operations can become almost "routine" in the Arctic.

Ever since the squadron arrived at Thule 18 months ago they've been on "alert." Twenty-four hours a day, seven days a week the 327th's standby crews are ready to launch, in an instant, their metal birds against enemy attack. In huge closed-door hangars on both sides of their alert building stand armed-to-the-teeth F-102s. Twenty-four rockets bristle from within their sleek, sweptback wings. Six GAR air-to-air missiles are there, too.

The small fighter squadron, commanded by Lt. Col. Thomas M. Tilley, is typical of many Air Force units standing alert duty worldwide. But to become operational the 327th FIS had to overcome problems never heard of in temperate zones. The most challenging of these is treacherous Arctic weather which makes multi-engine flying difficult at best, single-engine flying almost terrifying.

SPRINTING *to an F-102* Delta Dagger *during practice alert are pilot and crewchief of Thule AB's famed 327th Fighter-Interceptor Squadron. Defending Arctic approaches is the 327th's mission.*

For four months each winter the 327th's pilots fly in numbing Arctic darkness when the sun seldom if ever shines. As pilots taxi their aircraft from the warm hangars to the freezing outdoors a 100-degree temperature change blasts their planes. "It's like being hit in the face with a stinging snowball," said one F-102 pilot.

Once fighter pilots take off from Thule they have no alternate field at which to land during an emergency. They either make it back to base, or crash on the frozen wastelands where a man can freeze to death in ten minutes if caught in the open by a deadly "phase" wind.

Winter weather also brings hazardous fogs that often blanket Thule, reducing conditions to zero-zero. A lone GCI site on a mountain top near the large northern base is the 327th's only electronic link to the ground.

Yet the squadron stands a quiet, heroic vigil at the top of the world. Its pilots, some of the best, can handle the dangerous surprises of Arctic flying.

Before pilots are assigned to Thule they are "combat ready" in the F-102. After they arrive at the Air Force's most northern base they learn how to use the survival equipment that may save their lives.

"We wear complete Arctic survival gear in winter," said Lt. Dick Brooks, a squadron pilot, "and then in summer switch to rubber suits which will keep us alive if we are forced to eject into the open water." A man not wearing a rubber "dip suit" will die in 45 seconds if he bails out into the melted fjords.

While on alert duty crewmen live in a large, comfortable building where they eat, sleep, and watch TV. All 327th FIS pilots stand "alert" duty once every three days. If the "scramble" buzzer sounds they can be airborne in less than three minutes. Arctic weather, in this case, helps.

DRAG CHUTES *are released when F-102s touch down at Thule.*

PILOTS AND CREWCHIEFS *stand "alert" duty once every three days. Each man has year's tour at the Air Force's northernmost base.*

STREAKING *over northern Greenland, a pair of F-102s patrol over white, barren Arctic. Aircraft are armed with deadly rockets.*

"The cold air helps us get airborne in about 1,500 feet instead of twice that distance," said Capt. Donald Grostic, an F-102 pilot.

After the supersonic F-102s make afterburner takeoffs and are in the air the GCI site guides them toward their intended targets. Then they intercept, and if necessary, destroy the target.

This is the possibility the fighter pilots hope they will never face. If they must, they know that they are America's first line of defense against Arctic air attack. How do they feel about it? The pilots have the answer; "We're ready!"

Communist Illusion and Democratic Reality

by
J. Edgar Hoover

THE United States is involved in a world crisis. We did not create the crisis. The communists in Russia began it in 1917 when they overthrew a liberal democratic government to establish a dictatorship. It was their intention then, and it has been their goal ever since, to use that revolutionary weapon to establish a world dictatorship. This is the basis of our present-day crisis. No one can predict how long the crisis will continue. We do know, however, that it has become a total struggle between two fundamentally opposed social systems. Communism claims that man is only what he eats. Democracy rightfully insists that not by bread alone does man live but also by the things of the spirit. In this profound difference is to be found the intense drama of the conflict.

We have now entered a crucial phase in this global contest between world freedom and communist imperialism. Free peoples everywhere must constantly re-examine their thinking and objectives. They must reappraise the challenge of communism in the light of current communist tactics. From this reappraisal there must be developed a new, fearless, flexible, and positive long-range course of action which will insure the triumph of freedom in what can only be viewed as an extended struggle for the minds and loyalties of men, women, and children in all lands.

In this struggle, the United States Air Force has been assigned a key mission. The capacity of the Air Force for instant retaliation in the event of communist aggression is one of the strongest bulwarks of the entire Free World against further expansion of the communist empire. In the struggle against communism, however, military preparedness alone is not sufficient. It is equally important to be prepared to counter effectively communist psychological pressures.

Communist Re-evaluation

World communism, under the dictatorship of the

This article has been especially adapted by J. Edgar Hoover, Director of the Federal Bureau of Investigation, for publication in THE AIRMAN. *It is based on an article written by Mr. Hoover for members of the National Strategy Seminar held in Washington, D. C., last year.*

Soviet Union, knows that basic changes are taking place in many nations throughout the globe. It has re-evaluated the international situation and altered its tactics accordingly. No less an authority than N. S. Khrushchev has proclaimed—and implicitly warned—that ". . . a serious change has occurred in the balance of forces between the countries of socialism and capitalism in favor of the socialist nations."

Whether or not we agree with this communist analysis is beside the point. The important fact is that this analysis underlies the current communist tactics with which we must contend. Nor can we completely discount communist capabilities. Despite the fact that many communist claims are highly exaggerated, the existence of the communist bloc of nations as a potent factor on the international scene cannot be ignored. The record of communist conquests during the past 40 years is available for all to see.

Predatory Empire

From "a spectre . . . haunting Europe" a little over 100 years ago, the communist movement has developed during the past four decades into a predatory empire which now controls approximately one quarter of the land area of the world and which boasts of its domination over nearly one billion people—approximately one-third of the world's population. Elated by recent Soviet scientific, technological, and economic successes —and reinforced by demonstrated military might—the leaders of the world communist movement are now attempting to deal from a position of arrogant power.

Spurred by the realization of these capabilities, world communism has launched a broad political-economic offensive. The old fear of "capitalist encirclement," which motivated the defensive Soviet approach to international affairs during the 1920s and the 1930s, is gone. In its place, there has developed a dynamic, aggressive, competitive spirit. The time-tested communist tactics—propaganda, front group activity, diplomatic maneuvers, and the united front—have not been abandoned. They are now being implemented by such programs as extensive economic aid, technical assistance, and the interchange of delegations. All of these are carefully planned and coordinated on a worldwide scale to further communism. This multipronged offensive has been adroitly cloaked under the saccharine slogans of peaceful coexistence and peaceful competition, in an effort to lull the Free World into a false sense of security.

Psychological Campaign and Barrages

Basic to all other aspects of this offensive, however, is the psychological struggle. This is the campaign to win the minds and loyalties of men. It explains the use by communists—to a degree unprecedented in history—of every means of mass communication in their efforts to mould men's minds.

Measured in terms of its subtlety, diversity, vigor, and extent, the worldwide communist propaganda onslaught must be rated a substantial one. No medium is overlooked in extolling the merits of communism while, at the same time, exploiting social, political, and economic unrest throughout the noncommunist world. Radio, television, motion pictures, and all forms of the printed word are linked with diplomatic measures, trade agreements, offers of economic and technical assistance, and international trade fairs to subject the Free World to a continuous propaganda barrage. Employed in close conjunction and coordination with communist economic and political machinations, propaganda, one of the most powerful weapons in the communist arsenal, becomes even more formidable. Woven around the themes of peaceful coexistence and peaceful competition, this campaign of psychological pressure can be expected to increase substantially in both variety and intensity in the years to come.

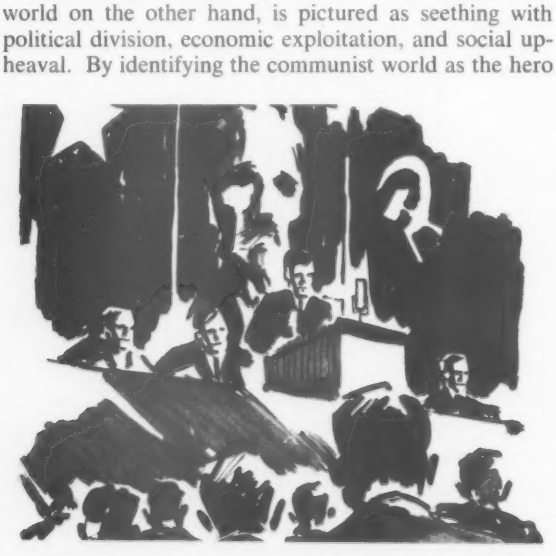
That the communists regard the psychological struggle as fundamental is evident not only positively from their vast propaganda effort, but also negatively from their obsession for insulating those they have enslaved from any exposure to what are considered unorthodox —and, therefore, dangerous—influences.

Inevitability and Invincibility

Implicit in all communist propaganda, whether designed for domestic or foreign consumption, is the

"No medium is overlooked in extolling the merits of communism . . ."

premise that the ultimate triumph of communism is inevitable because it proceeds from laws as immutable as those governing the development of biological organisms. Communist propaganda portrays peace, social progress, and economic prosperity as characteristic of the communist world and claims that these make communist nations invincible. The noncommunist world on the other hand, is pictured as seething with political division, economic exploitation, and social upheaval. By identifying the communist world as the hero



"...A beachhead of subversion within our own Nation."

and the Free World as the villain in the drama of historical progress, communist propaganda represents the triumph of communism, not only as an inevitability, but also as the victory of good over evil.

Goals, Roles and Threats

While extremely flexible, communist propaganda exhibits an extraordinary similarity and consistency throughout the entire world. The centralized planning, control, and direction required for this coordination are provided by Agitprop, a section of the Central Committee of the Communist Party of the Soviet Union. Once the "Party line" has been set by Agitprop, it is dutifully echoed by the communist parties throughout the world, except in Yugoslavia,* as one phase of their unrelenting efforts (1) to give guidance to communists and strengthen their morale and loyalty; (2) to indoctrinate noncommunists in communist ideology; (3) to divide, weaken, confuse, and neutralize all anticommunist opposition; and (4) to defend the Soviet Union at all costs.

Every communist party is a highly organized revolutionary group whose members are motivated by a zeal which rivals religious fanaticism in its intensity. All parties, again with the exception of Yugoslavia,* are bound together, not only by a common ideology, but also by close "fraternal" ties. As such, they represent an interlocking, international conspiracy dedicated to the overthrow of all noncommunist governments. Owing their allegiance only to the Soviet Union, they offer it their unquestioned and undeviating support and serve, in effect, as conspiratorial agents of this foreign power.

The Communist Party, USA, as an integral part of the international communist movement, represents a beachhead of subversion within our own Nation. So long as the communist movement threatens to impose its domination on the entire world, the Party will represent a threat to our internal security. Consciously modeled after the Communist Party of the Soviet Union, the Communist Party, USA, is today a tightly knit, hard-core group which offers its unswerving allegiance to the Soviet Union. In the showdown with the United States which the communists insist is inevitable, there is no doubt that the Soviet Union is relying heavily on the Party as an advance detachment within our borders ready and willing to carry out any hostile act of which it is capable against this Nation.

Organizational Weapon

Every communist party is an organizational weapon. Its strength lies in the day-to-day practical application of communist ideology by each individual Party mem-

* Although communist, Yugoslavia does not accept the leadership of the Soviet Union.

ber. Communist theory is not a mere dogma. It is a guide to action. Every communist unhesitatingly sacrifices his personal life to advance the cause of communism. He is not bound by any of the traditional moral or ethical scruples. Any action—violent or peaceful, lawful or unlawful, moral or immoral, open or covert—which will promote communist goals, automatically becomes justified. His every tactic is guided by the principle that he is actively at war with the entire non-communist world and that this conflict is not restricted to the political, social, and economic fields, but invades every phase of human endeavor. Thus, much of the ultimate strength of communism lies in its flexible ideology translated into organized action by the rigid discipline and militant dedication with which every communist is imbued.

Contradictions and Fallacies

The communists assert that Marxism-Leninism—an atheistic and materialistic philosophy—is based on a scientific analysis and interpretation of nature and history. But, Marxism-Leninism is no science. It is actually an extremely flexible hodgepodge of half-truths and errors used by a tyrannical clique to suit immediate political needs. The absurdity of calling Marxism-Leninism a science is apparent. No science finds consistency in the most startling contradictions.

In the name of ending the exploitation of the common man, the communist hierarchy has developed into parasitic ruling class which has imposed a ruthless domination over millions. In the name of humanity, communism suppresses the most elementary human values and robs the individual of his inherent dignity and worth. In what is pictured as a workers' paradise, slave labor is commonplace and the working man is denied the right to strike. In the regime which claims to have eliminated all discrimination, anti-Semitism is virtually official policy. The pretension that communism stands for national independence is flagrantly contradicted by the brutal suppression of the uprisings in East Germany, Hungary, and Tibet.

Communist philosophy is demonstrably false. Communist tactics—individual and mass terrorism, infiltration and subversion, the abrogation of treaties, to mention just a few—are abhorrent to the entire civilized world. Yet communism represents a massive effort to transform not only the world but human nature itself. It offers the dream of a worldwide society in which, it is claimed, there will be lasting peace and harmony. The fact that this offer continues to deceive people makes it evident that the power of a myth is still a factor to reckon with in human relations.

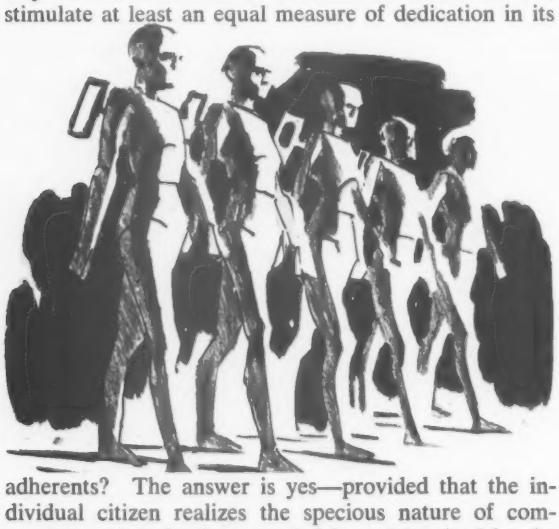
Pursuit of an Illusion

In the search for this "utopia," the individual communist is transformed from a mere ideological adherent into a militant, disciplined agent whose entire life is blindly devoted to the communist cause. This clarion

"Militant, disciplined agents . . . blindly devoted to the communist cause."

call to action motivates communists and instills in them their fervor to change the world. Yet, in their goal of a worldwide stateless, classless, godless society, the communists are pursuing an illusion. It is an illusion because man, by nature, is meant for diversity, creativeness, freedom, change, and growth. No monolithic, static, standardized, totalitarian world-communist society can provide the proper climate. It is also an illusion because man's origin, purpose, and destiny are intelligible—a fact which communist theory and practice ignore. Man is not, as communists claim, the product of a ceaseless play of chemical and physical elements. He is endowed by his Creator with a purposeful life.

If this communist illusion can inspire such intense communist energy, should not our obviously superior way of life, rooted in the realities of human nature, stimulate at least an equal measure of dedication in its



adherents? The answer is yes—provided that the individual citizen realizes the specious nature of communism and is firmly grounded in and inspired by the principles and traditions of our own Nation.

Our free society is so far superior, both spiritually and materially, to communist totalitarianism that, until recently, we assumed that our citizens did not need any specialized knowledge or training to withstand communist psychological pressures. This somewhat naive presumption was abruptly dispelled during the Korean conflict. In military combat on the battlefield, the men of our fighting forces acquitted themselves admirably. Unfortunately, however, in the individual, personal, ideological conflict with their communist captors, some American prisoners of war capitulated. The majority of these who collaborated with the Chinese communists were unable to resist communist indoctrination by practitioners skilled in the technique of the Big Lie.

Disturbing Report

A five-year study of the conduct of American prisoners of war during the Korean conflict was made by the United States Army. This study disclosed that there was, in the morale of American prisoners of war, a breakdown which reached disturbing proportions. Almost one out of every three American prisoners of war collaborated to some degree with the communists. This collaboration included broadcasting anti-American propaganda, writing articles praising life under communism, "confessing" to the use of germ warfare, and signing peace appeals and other communist petitions. Our soldiers informed on one another and fraternized with the enemy. The death of some American prisoners could have been prevented if they had not been completely neglected by their fellow captives. Not one American prisoner of war succeeded in escaping. Some even chose to remain in Communist China rather than to return to the United States. That American military personnel collaborated at all is difficult to understand. Even more disturbing are the extent of the collaboration and the casual attitude of those who were guilty.

As a result of the study, President Dwight D. Eisenhower, in August 1955, promulgated for members of the Armed Forces a Code of Conduct specifying the duties and obligations of our fighting men. The report of the special committee which had recommended the adoption of this code pointedly revealed:

> **"The uninformed P.O.W.s were up against it. They couldn't answer arguments in favor of communism with arguments in favor of Americanism because they knew very little about their America. . . ."**

The report concluded that our Armed Forces had not adequately prepared their men for the rigors of communist indoctrination. It looked behind this failure, however, and stressed that our homes, schools, churches, and patriotic organizations must also assume greater responsibility in educating Americans in the principles which underlie our democratic way of life. The importance of such an affirmative long-range educational program is borne out by the special committee's finding that, in many cases, our fighting men were at a disadvantage because they knew less about the ideals and traditions of their own country than did their communist interrogators.

Exposure and Education Necessary

The behavior of these prisoners of war was less an individual failure than it was an indictment of our entire society which had not prepared them adequately for their head-on collision with communist indoctrination. All Americans must share some responsibility for the conduct of these prisoners of war. More important, we must not ignore this forceful example of the impact of communist psychological pressures. Our continued survival may well depend upon the action we take now to insure that all citizens, not only military personnel, are fortified against the continuous communist ideological assault.

We can defeat communist ideology and—at the same time—reinforce the structure of our own democracy by the combined process of exposure and education.

The illusions of communism cannot withstand the penetrating light of truth. For a number of years, congressional and state investigations of communism, essential for the consideration of legislation, have focused the pitiless glare of publicity on many phases of com-

munist activity. The reports of these investigative bodies are readily available and include detailed information regarding the activities of the Communist Party, USA, throughout the country.

The Committee on Un-American Activities, U. S. House of Representatives, has issued a convenient "Guide to Subversive Organizations and Publications." This is a listing of the various organizations cited by the Attorney General of the United States, as well as other organizations and publications found by congressional or state investigative committees to be communist dominated. The introduction to this publication consists of a brief historical review of communist front group activity, an explanation of the methods by which communist front groups are established, and a set of criteria to assist in detecting them.

The effectiveness of these investigative committees in exposing the aims, principles, and methods of communism can best be measured by the bitterness and the intensity of communist attacks upon them, as well as by the continuous communist campaigns to abolish them.

Eyewitnesses

Former communists are also victims of communist vituperation because of the important role they play in exposing the true nature of communism. Many of these persons, after renouncing communism, have testified before courts, administrative hearings, and investigative committees. Through books, articles, and lectures based on their firsthand knowledge, they have helped to alert the public. In addition, their testimony has provided valuable evidence which has enabled the Government to prosecute communists who violate our laws. By these actions, many former communists have not only rehabilitated themselves but have, in the process, made a substantial contribution to the security of all Americans.

Dual-Purpose Education

Every exposure of communism's false premises, inherent contradictions, deceitful tactics, and empty promises helps to shatter its ideological appeal and to fortify against its psychological pressures.

But, in this struggle for men's minds, exposure alone is not enough. Exposure must be complemented by a long-range educational program with a dual purpose. This program must encompass, not only a penetrating study of communism, but also a thorough grounding in the basic principles of our individual freedom under law. It must be education which prepares people to think and to separate error from truth.

Each year, more colleges are offering courses which present a critical analysis of the theory and practice of communism. In at least one college, a course of this type is compulsory. Books contrasting communism with democracy are now being published for use in our high schools. This academic instruction can be supplemented by individual study of the wealth of anti-communist material available as well as by widespread participation in group discussions and public forums. This program of education in communism must not, of course, constitute or be confused with the advocacy of communist doctrine. It can and should be limited to a critical study of communist principles and tactics and the materialistic philosophy underlying them.

Knowing what communism really is and how it operates will also help us to avoid the danger of confusing communism with legitimate dissent on controversial issues. Communism feeds on social ferment. On both the local and national levels, the Communist Party, USA, is continually exploiting social, economic, and political grievances for its own tactical purposes. For this reason, the "Party line" will frequently coincide with the views of many noncommunists on specific issues. We must not, therefore, indiscriminately label as communists those whose opinions on a particular question may, on occasion, parallel the official Party position. We must also guard against the tendency to characterize as communists those who merely disagree with us or who advocate unorthodox or unpopular beliefs.

When anyone is erroneously branded a communist, it not only constitutes an injustice to the individual, but also helps communism by diffusing the strength of anti-communist forces. In combatting communism, we must beware of vigilante action. The responsibilities of citizens are to be certain of the facts and to report these facts to the proper authorities.

Develop Democracy

Knowledge of the communist enemy is only the first phase of the battle. This knowledge must be augmented by a continuous revitalization of our own inherently superior strength through the practical, daily exercise and development of our democratic principles. Too frequently, emphasis is placed on acquiring an

understanding only of the mechanical functions of our Government, such as elections, the enactment of legislation, or judicial review. This knowledge, important as it is, becomes a mere collection of sterile facts without a deep appreciation and a continuing awareness of the reason for the very existence of our form of Government—the freedom of the individual under law. Without the realization of this fundamental philosophy of freedom, such basic individual rights as freedom of speech, the press, and religion are taken for granted. Forgotten is man's bitter fight through the centuries to wrest these freedoms from tyranny.

The exercise of these individual freedoms, which we often take for granted, is largely responsible for our Nation's reputation for getting things done. Many of us have seen, or have even participated in, programs for community improvement promoted by private organizations and civic groups. Recognizing a specific problem which required cooperative action, and sparked by individual initiative, whole communities have organized, for example, to attract new industry, to eradicate blighted slum areas, to eliminate racial tensions, or to improve educational opportunities. Public officials, religious leaders, representatives of business, labor, and the professions, realizing a common interest, have fused their energies and, in many cases, have literally transformed their communities. Significantly, however, while many of the problems these communities faced were similar, there was no set pattern in the solutions which were devised.

Just as specific local problems and resources have determined the nature of the response, so too any organized program to immunize a community against communist penetration must be tailored to prevailing local conditions. All that is required is imagination, resourcefulness, and some personal sacrifice coupled with the will to inspire positive action to combat communism and to strengthen democracy at the community level.

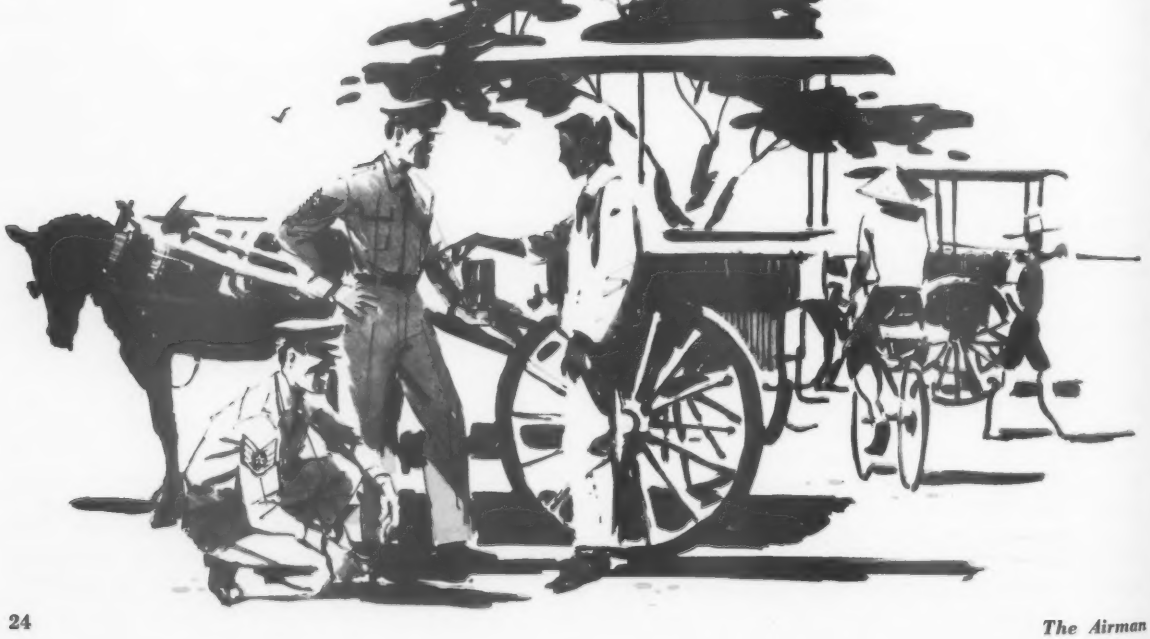
Law and Freedom

In the State of Florida, for example, the bar association developed a lecture program on the theme of the advantages of democracy over communism. These lectures are given to high school students throughout the state by specially trained practicing attorneys. The speakers outline how our Government operates, what must be done to keep it functioning effectively, and why it is superior to the Soviet system. All of the lectures given under this program stress the duty of each citizen to interest himself actively in public affairs. The American Bar Association, in cooperation with the American Heritage Foundation, annually observes Law Day with ceremonies throughout the country to contrast the Rule of Law in our country with the rule of fear in communist nations.

Veterans, Americanism, Religion and Truth

To offset the Communist Party's celebration of May Day, the Veterans of Foreign Wars sponsor an annual Loyalty Day parade in New York City. At its Indianapolis headquarters, The American Legion maintains an Americanism Commission, which provides information about communism to the public.

Individual religious faiths have held training classes for members of trade-unions who are actively opposing communist attempts to infiltrate the labor movement. The interdenominational Foundation for Religious Action in the Social and Civil Order, of Washington, D. C., has been organized to stress the importance of



religious truth in the preservation and development of democracy. Its goal is to unite all who believe in God in the struggle against atheistic communism.

The Assembly of Captive European Nations prepared a large photographic exhibit featuring scenes of communist domestic terror and Soviet imperialism. Sponsored by the AFL-CIO and other organizations, this dramatic exhibit was shown in a number of our larger cities, as well as in cities abroad. The Freedom Train, which toured the United States with such documents as the Constitution and the Declaration of Independence, gave many of our citizens, who would not ordinarily have had the opportunity, a chance to view these hallowed symbols of American freedom.

As a public service, many individuals and private organizations prepare, or reprint, and distribute anticommunist literature. In Pennsylvania, the Department of Public Instruction, aware of the increasing demand for such a reference work, had the Library of Congress prepare a selected annotated bibliography on communism for use by teachers and students. The United States Air Force makes available to its personnel a well-rounded educational program, including courses on American history and civics, through which a high school diploma and even college credits can be earned.

Local activity can have far-reaching effects. A group of graduate and undergraduate students decided to capitalize on the communist-inspired Seventh World Youth Festival held in Vienna in 1959. For a year prior to the festival, they visited college campuses searching for students who could effectively represent the United States and who were willing to attend. They distributed pamphlets outlining the communist background of this and previous festivals, as well as booklets of facts and figures on issues which communist propaganda has been exploiting. This group also conducted briefing sessions for the anticommunists who planned to attend. News accounts of the festival highlighted how the anticommunist American delegates stole the communists' thunder as a result of their ability to correct the misconceptions and distortions of American society which have always characterized these festivals.

Ambassadors Abroad

Americans, both military and civilian, who are working in or visiting foreign nations can play an important role in the struggle against communism. Every citizen abroad is, in a very real sense, a full-time "ambassador" not only of our Nation but also of the entire democratic way of life. An understanding of and a respect for the rights of others are fundamental to our concept of individual freedom. This also applies in our dealings with citizens of other nations regardless of educational, social, or economic considerations. By exercising his individual freedom in a responsible manner without violating the rights of others, regardless of their race, creed, or color, every American traveling abroad can serve as a forceful example of the democratic process in operation. By being filled with knowledge about his own form of democracy the American abroad can sow positive and constructive ideas which one day may help to produce a harvest on which the Free World can grow stronger.

Reality versus Illusion

Communism has hurled us a mortal challenge. It is directed not alone at our social order but also at the concept of man on which our social order rests. Our response, and the response of free men everywhere will determine whether or not our practices and concepts will survive. It is no longer sufficient for us to adopt the negative approach of merely reacting defensively to every shift in communist tactics. We must place greater emphasis on the positive role which our democratic way of life can perform in this struggle.

American democratic reality is morally superior to the communist illusion. It is superior, not because it is ours, but because it expresses the universal qualities of human nature. We possess the true legacy of man's age-old struggle from slavery to freedom. Ours is an inheritance solidly grounded on the reality of man's manifold needs and aspirations and on his inherent dignity and worth as an individual.

A demonstrated faith in this heritage of democracy, rooted as it is in the Judaic-Christian tradition, is our mightiest weapon in the struggle for the minds of men. Our military might, political structure, and economic resources, while effective, will not by themselves insure the victory of freedom over communism. These weapons must be reinforced by each citizen's experienced and abiding awareness of the intrinsic superiority of his society. From this awareness will develop a revitalized determination, not only to continue our resistance to communism, but also to make our living democracy a force of moral and spiritual persuasion which will capture the imagination of the entire world.

GEN. HENRY H. "HAP" ARNOLD started it.

Speaking at an informal gathering of officers and their wives at Nags Head, N. C., in August 1941, the Chief of the Army Air Forces told his listeners: "I want you to get our Air Corps relief organization started—Now!"

The general discussed his plan with interested military and civilian personnel. On March 9, 1942 they formed an organization that was incorporated under the laws of the District of Columbia as the Army Air Forces Aid Society. On March 1, 1946 the Army Air Forces Aid Society began operating as the official emergency relief organization of the AAF.

The following year its name was changed to Air Force Aid Society because the Air Force was no longer a part of the Army.

In 13 years of operation the Air Force Aid Society has provided over 25 million dollars for emergency assistance to Air Force personnel and their dependents. In the 305,000 cases in which the society has given emergency assistance the greatest loan demand has been for money for food, clothing, and rent, due to nonreceipt of pay or allowances. During this same period the Henry H. Arnold Educational Fund awarded 770 college scholarships to dependent Air Force children in the form of loans and grants amounting to $355,000.

"The extensive assistance program our Aid Society has conducted for the past 13 years deserves the recognition and appreciation of each Air Force member." . . .

GENERAL THOMAS D. WHITE, *Chief of Staff, USAF*

A FRIEND IN NEED

Here are the facts you need to know about the Air Force Aid Society

Q. What is the Air Force Aid Society?

A. The AF Aid Society is the official non-governmental emergency relief organization of the Air Force.

Q. What is its mission?

A. The AF Aid Society's mission is to help maintain the morale of Air Force personnel by (1) providing emergency financial assistance in the form of non-interest bearing loans and outright grants, and (2) financing the higher education of dependent children of USAF personnel whose parents would not otherwise be able to send them to college.

Q. How do you obtain a loan or grant?

A. By discussing your problem with the Air Force Aid Society officer on your base and filling out an application form. Every application is carefully reviewed by the Air Force Aid Society officer at your base. After analyzing all the facts, he decides whether you are clearly in need of a loan or a grant of funds.

Q. Who is eligible for assistance?

A. Air Force personnel and their dependents. Air Reserve and Air National Guard personnel on extended active duty with the Air Force, and their dependents. Retired Air Force and Army Air Forces personnel and their dependents. Dependents of deceased Air Force and Army Air Forces personnel who died while on active duty or in a retired status.

Q. What is "emergency" assistance?

A. The Air Force Aid Society interprets an emergency as "a condition that requires immediate attention; a situation that arises suddenly, which is unforeseen and urgent."

Q. What types of cases are usually assisted by the Air Force Aid Society?

A. Nonreceipt of pay or family allowance. Advance rent and payment of rent to prevent eviction. Emergency medical, dental, and hospital expenses. Purchase of emergency food supplies and clothing. Emergency transportation of dependents for reasons of health, or to their permanent homes when they become stranded at or near an Air Force base. Training dependents of deceased Air Force personnel so as to enable them to secure employment. Assistance to dependent children to enable them to obtain higher education (See *There's A Scholarship*, THE AIRMAN, Aug. '58). Assistance to dependents upon the death of Air Force personnel is provided if payment of death benefits is delayed or inadequate to meet the survivors' immediate urgent needs. Limited assistance for funeral expenses.

Q. Assuming that I am eligible for assistance, just how does the Air Force Aid Society help me?

A. Financial assistance is provided in the form of noninterest bearing loans and outright grants. In most cases a loan is made, but if a serious hardship exists, assistance may be in the form of an outright grant. Grants, of course, need not be repaid. If a grant is later repaid, it is credited as a donation to the society.

Q. How are the loans repaid?

A. At the time a loan is made its repayment is discussed. Usually payment will be by a monthly deduction from the individual's pay. If, for some reason, the allotment-of-pay plan is not practical repayment may be made by cash.

Gary Jeffus, 2d from left, wears bi-aural hearing aids contained in the stems of his glasses. A loan from the George AFB, Calif., AF Aid Society enabled them to purchase the $515 mechanism. Seated from left are: Norma, Gary, Sergeant and Mrs. Jeffus, and Linda. On the floor are Roger and Donald.

Q. What determines whether assistance is given in the form of a loan or grant?

A. The majority of cases handled by the society are on a loan basis. In the processing of an application, however, the facts may indicate that a loan would be entirely impracticable, as the applicant could not repay. Assistance is then provided as a grant.

Q. Is any dependent eligible for assistance?

A. The Air Force Aid Society considers the spouse and children to be dependents and they are eligible for assistance. Parents who are dependent upon a member of the Air Force for support may be considered eligible.

Q. If I have an emergency away from my base can I obtain assistance from the Aid Society?

A. Yes, by going either to the nearest Air Force installation or to the nearest American Red Cross office. Applications for assistance from Air Force personnel or their dependents who are living off base in communities throughout the U. S., are best assisted through the local chapter of the American Red Cross who makes the referral to the society.

Q. If I am away on TDY or for other reasons, can my wife or dependents obtain assistance?

A. Yes, by applying for assistance in the same way as you would if you were there. However, such assistance must be coordinated with you when possible.

Q. Can I obtain assistance while stationed overseas?

A. Yes. Air Force Aid Society officers are located at most overseas bases.

Q. Must I be a member of the Air Force Aid Society to be eligible for assistance?

A. No.

Q. Why does the Air Force Aid Society conduct an annual campaign?

A. To publicize the society's mission, policies, and operation to all personnel eligible for emergency financial assistance, or for scholarship assistance from the General Henry H. Arnold Educational Fund and to raise funds for the operation and growth of the society.

Q. Where does the Aid Society get its money?

A. The Air Force Aid Society gets its income from the annual campaign; profits from fund-raising activities, such as carnivals, sports events, and other activities providing they do not conflict with local laws; donations from military clubs and organizations and civilian firms; interest and dividends earned on investments; royalties from books and songs; and memorial gifts.

Q. Must I go to the American Red Cross prior to seeking aid from the Air Force Aid Society?

A. No. However, the Air Force Aid Society officer coordinates applications for assistance with the ARC. If the Red Cross indicates that they can provide assistance, then it is appropriate for him to refer the applicant to the ARC.

Q. Does the Society provide assistance to have airmens' families shipped overseas?

A. No. The Air Force Aid Society would be acting contrary to Air Force regulations should it provide assistance for this purpose.

Q. Who is eligible for assistance under the General Henry H. Arnold Educational Fund?

A. Children eligible for educational assistance are the unmarried dependent sons and daughters (including stepchildren and legally adopted children) of:

(1) Deceased Air Force personnel who died on active duty or in retired status.

(2) Deceased Army Air Forces personnel who died on active duty or in retired status.

(3) Retired Air Force personnel.

(4) U. S. Air Force personnel on active duty.

(5) Air National Guard and Air Reserve personnel on extended active duty with the U. S. Air Force.

Q. How do you become a member of the Air Force Aid Society?

A. Any individual, either military ar civilian, may become a member of the society by contributing one dollar or more to the Air Force Aid Society.

Q. Where can I obtain additional information?

A. By contacting the Air Force Aid Society officer on your base or by writing to the Air Force Aid Society, Personnel Services Division, Headquarters USAF, Washington 25, D. C.

THE WORLD IS THEIR CAMPUS

by Capt. Ted R. Sturm, USAF (Ret.)

THE airman opened the first page of the OJT Package Program for Aircraft Control and Warning Operators, thumbed through to the last. "That's where my five-level is," he said. "Here at the back end of this package." He doubted he could hack it.

He felt better after he got into it, though. "Somebody," he commented, "really knocked himself out to make this training as easy as possible."

A half a world away, a technical sergeant sweated out a balky radar set. "The bug is somewhere in here," he said to his assistant, who handed him a manual. The sergeant studied a schematic diagram and said, "A-ha!"

"Somebody," he told his assistant, "really knocked himself out on that manual."

The master sergeant shooed his wife and kids out of the study, and opened Volume I of 10, entitled Electronics Fundamentals. "I guess the old dog *will* learn new tricks," he had said when he decided that electronics was the answer to his retraining problem.

As he picked up his pencil he thought: *Somebody really knocked himself out on this project. Who would write 10 volumes on Electronics Fundamentals?*

Source of Knowledge

While these men were cracking the books that would boost them up their career ladders, a relatively small group of people at the Keesler Technical Training Center, Biloxi, Miss., were busy "knocking themselves out" to make things as easy, effective, and efficient as possible for thousands of students they had never seen nor couldn't list by name.

Here is the source of dozens of OJT Package Programs, manuals, ECI courses, and special reserve courses for ConAC. The organization is officially called Non-Resident Training, but although training is its sole purpose in life, NRT never grades a paper, has no instructors nor classrooms, and never convenes a class.

Yet NRT is responsible for the planning, preparation, and revision of 272 separate programs, most of which are vital links in electronics training throughout the Air Force. Part of Keesler's 3380th Technical School —the electronics center of the Air Force—NRT concentrates primarily on programs in the 27, 29, and 30 career fields. But although they specialize in these fields, the unit also prepares Package Programs on subjects like Meatcutting Supervisor, and Rescue and Survival Specialist, plus other manuals or programs which may be directed by Air Training Command or Headquarters, USAF.

There are several Non-Resident Training organizations in ATC, each dealing in its primary specialties as well as other unrelated subjects which may be assigned. Keesler's unit is typical in organization and function—keynoted in every case by accuracy and complete technical perfection.

To achieve this perfection, NRT has an airtight system of checks and double checks, beginning from the time the unit first sees the need for a program, conceives the project to fulfill the need, and starts production. The unit has four branches: radar, radio, copy, and art. Technical writers and educational specialists with many years' experience in their respective fields are assigned to the radar and radio branches which have several sections dealing with different specialties. Educational specialists analyze and plan the projects and assign them to writers. They research the subjects and outline

MSGT. ESKEW *retouches negatives to insure top quality reproduction for detailed training illustrations.*

CONFERENCES *on course revisions are held frequently by Lt. Col. Mary Costello, Director of NRT, John Wachs (seated), radar chief, and Howard Yund, radio chief.*

BELOW, *illustrator A/2C Emmitt Thames finishes drawings of component parts.*

the plans. Then writers and educational specialists get together to develop the writing outlines and obtain necessary approvals. A writer turns out the draft and determines art requirements. From here the material is submitted to a thorough technical and editorial review, illustrations are prepared, and finally the complete project undergoes final review. There are, in fact, more than 20 separate steps in the entire operation before the material is ready for printing and distribution.

The copy branch consists of 12 clerk-typists who are continually preparing drafts and final copy. The art branch prepares illustrations, creates covers and designs the layout for the final product.

Typical of the increasing importance of electronics training to the Air Force and the widening interest in this field among today's airmen is the fact that of the nearly 280 thousand students enrolled in ECI courses as of October 1959, 50,409 were taking courses prepared by Keesler's NRT. In fact, Keesler's 29 courses represented 26 per cent of the 110 courses in the ECI curriculum at that time.

Despite the fact that NRT never sees its students, the writers, artists, and educators never doubt that they are there. As NRT's motto states, *The World Is Our Campus.*

Point of View

Sir: I have just finished reading Sergeant O'Doherty's article *Fishing Is a Waste of Time* in the October issue. The author sounds as if he has never had a rod in his hand in his life.

A/2C Edward Joyce
Westover AFB, Mass.

Sir: If fishing is a waste of time, reading O'Doherty is an even greater one. We feel the term "fishing" means more than simply drowning minnows or losing fish hooks, and we suggest the author give the sport a whirl. He might learn plenty about peace of mind.

MSgt. Richard Valentine
SSgt. John Mullinax
Laredo AFB, Tex.

● *We have placed the many suggestions received regarding this article on Sergeant O'Doherty's desk. He will answer each one personally when he returns from his latest fishing trip.*

Sir: In my eight years' service, I have never been stationed on a base that enjoyed the many miles and acres of streams and lakes described in Sergeant O'Doherty's article. Could someone please inform me where all this wonderful fishing territory is?

A/1C Jerry Johnson
Vance AFB, Okla.

● *The Provost Marshal's office is presently charged with such supervision. We suggest you contact your local office or that of the Rod and Gun Club for pertinent information.*

★ ★ ★

Claim Entered

Sir: On page 47 of your November issue you state that you believe Maj. Gen. Alfred Kalberer, who has more than 20,000 hours' flying time, probably has more than any other pilot in the Air Force. We here in SAC think Col. Avery Ladd, vice commander, 90th Strategic Reconnaissance Wing, tops anyone else.

Lt. Col. Elmer Kretzschmar
Forbes AFB, Kans.

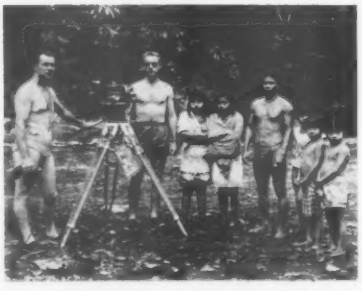
● *The information on General Kalberer was not offered as a claim.* THE AIRMAN *staff would be most interested, however, in determining who does have the most hours. Anyone with less than 20,000 hours need not apply.*

★ ★ ★

They Are . . .

Sir: In your September issue, on page 25, there is a picture of an APCS team shooting a jungle survival film. The team member wearing sunglasses looks very much like an old college buddy of mine. Can you identify him for me?

Lt. Warren L. Hommas, Jr.
Great Falls Intl. Airport, Mont.



● *The gentleman is Mr. Glen Kilpatrick of Winter Haven, Fla. He served as a member of one of the APCS contract crews for this particular film.*

Sir: In answer to the query in the September *Letters to the Editor* about the identity of the two men in a sketch of an earlier issue, one is Lt. Chris Jessen of the 337th Fighter-Interceptor Squadron at this base. The other is a captain in the 83rd FIS, but I do not know his name.

A/2C William Callough
Westover AFB, Mass.

Sir: The gentleman holding the map in the sketch in question is Capt. Orlando W. Jensen, 83rd Fighter-Interceptor Squadron. The lieutenant is assigned to the 337th, but I don't know his name.

TSgt. Ambrose Hammond
APO 109, New York, N. Y.

Misquote

Sir: I think you erred in quoting AFR 87-5 regarding the use of the term "Force" for 99-year lease bases. The term is expressly forbidden *except* for these bases and others specified.

Robert B. Cogswell
APO 856, New York, N. Y.

Sir: The use of the term Air Force Base is applicable to bases in the United States, its territories, and those under 99-year lease. Your answer in the letters column in November is incorrect in indicating it could not be properly applied to the latter.

Capt. John Bohrer
APO 856, New York, N. Y.

● *The gentlemen are correct.*

★ ★ ★

HOW YOU GET AIRMAN

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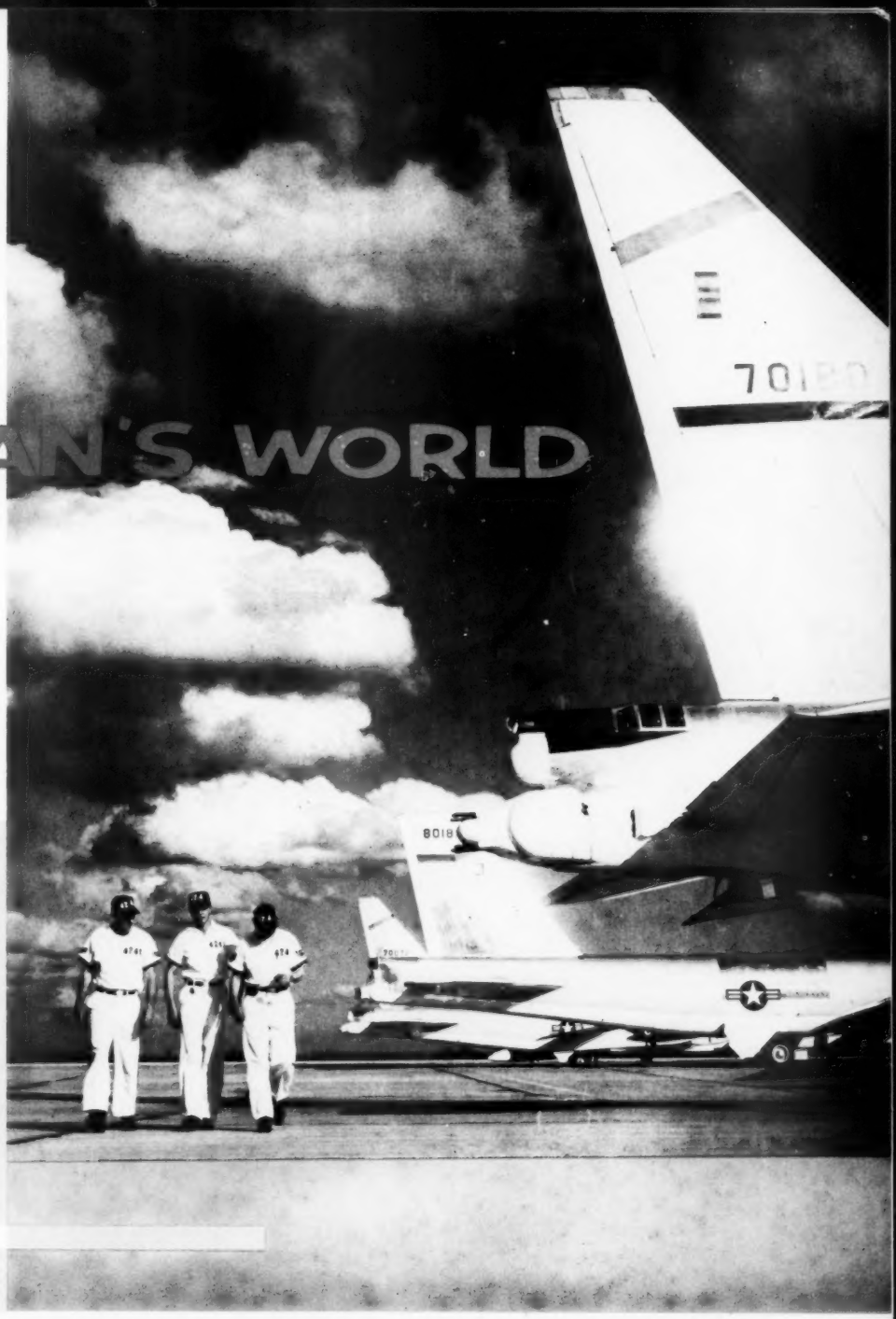
AIRMAN'S WORLD



"Upon the quality of the maintenance man's work depends the safety of the aircrews who fly our aircraft" — General Curtis LeMay, Air Force Vice Chief of Staff. Right: maintenance technicians walking near their aircraft during the recent SAC bombing competition at McCoy AFB, Fla.

Photo by MSgt. W. E. Lummus

INSIDE AIRMAN'S WORLD

People, Events, Panorama

People *who rank*

THEY MADE NEWS THIS MONTH

THE Soldier's Medal, the Nation's highest peacetime decoration for heroism, figured in two news stories this month.

At Lincoln AFB, Nebr., the medal was awarded to **A/1C Kenneth Gallant** for his part in saving the lives of two small children

Graham

Gallant

trapped in a burning trailer near Laughlin AFB, Tex. The children's mother died in the fire.

A/1C Lincoln Graham was honored for his role in rescuing a trapped airman from the blazing engine compartment of an aircraft refueling unit at Moody AFB, Ga., his present assignment. An explosion had wrapped the vehicle in flames, but Graham disregarded the danger to his own life.

OTHER heroic actions also made Air Force news this month.

At Shaw AFB, S. C., **A/3C James Reeves** rescued a hospitalized dependent parent and extinguished an oxygen-fed fire when the oxygen tent and bed of the patient were accidentally ignited.

Capt. John Graff had a hair-raising experience recently while instructing on a McDonnell F-101 transition flight at Griffis AFB, N. Y. Both aircraft tires blew on the takeoff run at a point too advanced to allow the flight to abort. The aircraft was lifted into the air, flown for nearly an hour to consume some of the gas load, then landed. It skidded 5,000 feet to a relatively undamaged halt.

A Spangdahlem AB, Germany, GCA team recently guided two German Air Force pilots to safe landings following the loss of automatic direction-finding equipment in the GAF aircraft. The action probably saved the lives of the pilots as only minimum fuel remained in both aircraft.

PEOPLE in brief . . . **Brig. Gen. James B. Knapp,** SAC Director of Civil Engineering, has been awarded an honorary doctor of science degree by Iowa's Parson College . . . The Florida community of Wewahitchka recently noted the transfer of **TSgt. William Brown** from nearby Tyndall AFB with a glowing tribute for his community efforts during his residence in the city . . . At Lockbourne AFB, Ohio, local airmen are still awed by the honor recently bestowed upon one of their comrades-in-arms. The recipient was **TSgt. H. T. Stowe.** The award, honorary mother—for his assistance in the formation of an Air Force Mothers' Club while on recruiting duty in Clinton, Iowa.

IF you don't think money goes as far as it used to, consider the case of **Lt. Robert A. Stewart,** 326 Fighter-Interceptor Squadron, Richards-Gebaur AFB, Mo.

Several months ago, Lieutenant Stewart was scheduled for a routine cross-country mission. However, high above the Kansas plains, he and his wingmen suddenly encountered tornado-bearing clouds, the peculiar properties of which caused Lieutenant Stewart's jet to flameout, and he elected to eject.

Sometime during the parachute descent his wallet was torn from his pocket as he was buffeted by the winds and pelted with golf-ball size hailstones. The lieutenant landed near Hays, Kans., and was hospitalized for observation.

Last month, Stewart had a new reason to feel a warm spot in his heart for Hays and its residents. His wallet was returned intact after being found by a farmer close by the friendly city.

EACH year, airman ingenuity saves the Air Force literally millions of dollars. Individually, the inventions and innovations are normally rather small; collectively, they are gigantic.

A/1C Fredrick Bryant and **A/2C Douglas Hogrefe** have designed and built an adapter for a maintenance hydraulic jack at Zaragoza AB, Spain. Use of the adapter frees four men from a former five-man task and eliminates the need for both a crane and buildup dolly for certain specialized engine jobs.

At McGuire AFB, N. J., **A/2C Charles Matthews** has devised an electric test box which allows a complete check of the Douglas C-118's gas turbine power unit electrical system. The simple box erases the need for several pieces of more complicated equipment and saves approximately three man-hours per unit check.

Not all the adaptations are designed for USAF's use. In Japan, **MSgt. Eugene Hoops** has devoted a good portion of his off-duty time to easing the task of Korean farmers. Through cooperation with South Korea's Ministry of Agriculture, he has been instrumental in the introduction of several simple farm machine improvements, adapted from outmoded American equipment.

Events *that count*

ITEMS THAT REFLECT AIR FORCE PROGRESS

Recent dramatic news events have proven, once again, that interservice cooperation is a reality—not simply a planner's dream.

Such cooperation prevented almost certain disaster in Houston, Tex., only weeks ago. In the bleak, pre-dawn hours, a series of explosions rocked the Houston Ship Channel as the tanker *Amoco Virginia,* loaded with more than 160,000 gallons of aviation fuel, exploded.

A new Texas City disaster seemed imminent when local firefighters were faced with a foamite shortage long before the flames could be brought under control. However, an emergency call to the Tenth Air Force Southern Rescue Coordination Center at Dallas brought nearby service units into the fray.

Supplies of the white, soapy liquid were on their way to the scene within minutes after the first call and began arriving at nearby Ellington AFB within hours. Less than six hours after the first supplies began pouring into Houston, the fire was under control.

In addition to the 250 tons of foamite rushed to the scene by Air Force and Navy crews, firefighters from these two services and from local Army and Marine Reserve units also entered the battle.

Nearby Coast Guardsmen aided by relaying appeals through their communications network.

Puzzle for pilots

USAF fighter pilots will have an improved *Firebee* remote-controlled drone to pit their skills against in months to come.

The Ryan Aeronautical Company's modified Q-2 drone began joining the Air Force inventory late last month. The C-model is being produced under a new $10 million "follow-on" contract which will assure an even more formidable "opponent" for fighter aircraft defenders.

Larger and faster than its Q-2A predecessor, the tiny drone will offer a real challenge. Sole target used in the 1958 and 1959 Worldwide Weapons Meets, the A-model established several challenging records. However, tests of the improved version produced marks which dwarf those now on the books.

Sparks of interservice cooperation

Why is 90 percent of all pro-pay ticketed for men in electronics? Big reason is that this USAF career field has grown rapidly, now ranks second only to maintenance.

This tallies with recently announced Department of Commerce figures which reveal that electronics has vaulted into fifth place among U. S. industries. Predictions are that within 10 years the field will outrank all others in the Nation.

Of the 130,000 USAF electronics specialists, 50 percent are in a career status.

Briefs

. . . USAF has let basic contracts to Boeing and Martin for the construction of a combination rocket-glider—dubbed Dyna Soar—designed to enable man to orbit the earth and return with the vehicle intact.

. . . Allison Division of GMC also announced receipt of a new contract. The target —design, fabrication, and performance testing of an earth satellite powerplant.

. . . New APTs for the mid-1960 testing periods have been announced for several fields — 29 (Communications Operations), 32 (Armament Systems Maintenance and Gunner), 36 (Wire Maintenance), and 70 (Admin).

. . . AFM 100-39, now available through distribution channels, should be of interest to everyone, directly or indirectly, connected with the electronics field. The subject—*Communications - Electronics Terminology*.

. . . Watch for an announcement in coming weeks of the move of a *Jupiter* IRBM squadron to Turkey to fulfill an agreement recently reached between that country and the U. S.

Aerospace Library

Books arriving for review this month represent a fine balance in several diverse fields. They run the gamut from biography through space.

Of major note is **The Hero,** by Kenneth S. Davis. A new treatment of the life of Charles A. Lindbergh, it is the culmination of meticulous research and painstaking attention to fact by the author. The book sells for $4.95 and is published by Doubleday and Co., Inc. Watch for it in your library.

Two works of professional interest are worthy of note. First is the periodical revision of **The Air Officer's Guide,** a ready reference which should be in the personal library of all Air Force officers. Cost is $6.00. Publisher is The Stackpole Co.

The Dictionary of Aeronautical Engineering, a technical tome selling for $10.00, embraces definitions of terms ranging from aerodynamics through propulsion and materials. Compiled by J. L. Nayler, it is available from the Philosophical Library, Inc.

Everything seemed to arrive in pairs this month. Two new works treat with combat aircraft. **Our Space Age Jets** is a revision of C. B. Colby's earlier **Our Fighting Jets.** Price is $2.00; the publisher, Coward-McCann.

Doubleday and Co., Inc., has also released a revision of an earlier publication. This is the new version of **The World's Fighting Planes** by Wm. Green and Gerald Pollinger, and costs $3.50.

Space was also the subject for an excellent brace of books. William Nephew and Michael Chester, both of whom head missile research teams, collaborated to turn out a narrative built around the construction of a **Moon Base.** Easy to understand, the book is available for $2.75. Publisher is G. P. Putnam's Sons.

Also important in this month's space literature is **Seeing the Earth from Space.** This $3.50 buy was written by Irving Adler and deals with the new material now available to scientists as a result of data obtained from the earth satellites. Publisher is the John Day Co.

The final duo of the month is written by Erik Bergaust. Both **Satellites and Space Probes** and **Rockets of the Navy** are done in his familiar photo-journalism style. Pictures are used profusely; text is brief and easily understood. These two make excellent additions to earlier G. P. Putnam's Sons releases of Bergaust works in the same general category.

You Ask It

Q **Can you tell me how often any given career field is placed under study for revision?**

A Most career fields remain under constant scrutiny and adjustments are made as they become necessary.

Q **Does the Air Force contemplate further changes in the Quality Control Program?**

A There are indications that additions will be made to the present program, probably in the areas of retirement and reenlistment. Future months may also bring a tightening of some of the policies now in effect.

Q **Can you tell me why A/1C and four years' service were combined as the cut-off level for certain dependent privileges?**

A Because of budget limitations, some arbitrary line had to be drawn. After many factors were weighed, the combination of grade E-4 and four years' service was finally selected. This is the point at which individual value tends to increase to a degree where additional privileges may be granted as a partial return for the increased services rendered.

Q **Which regulations govern retraining?**

A There are several in the enlisted personnel (AFR 39-) series. Probably the two most important are AFR 39-8, *Airman Utilization and On-the-Job Retraining,* and AFR 39-9, *USAF School Retraining Program.* Both are revised periodically to reflect the latest changes in the affected career fields.

Q **Which publications govern the wearing of foreign decorations?**

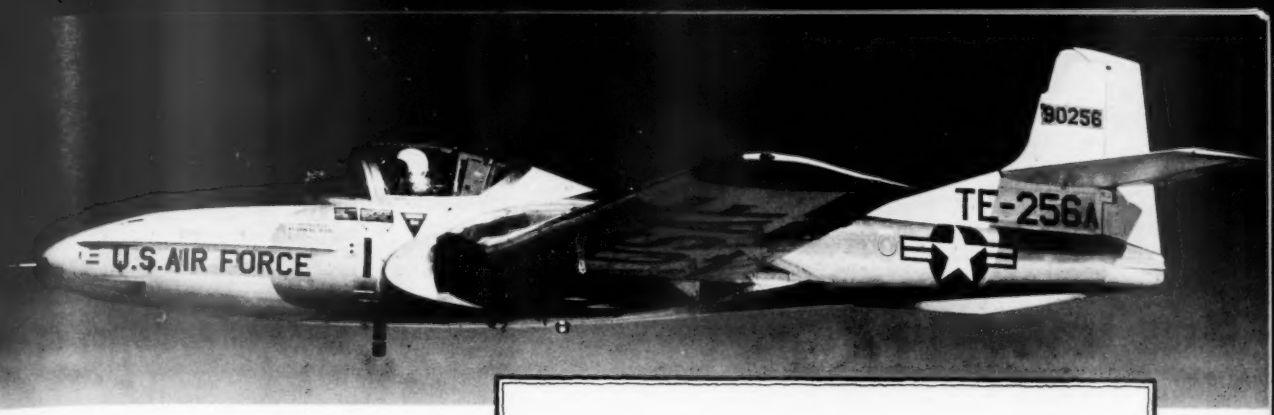
A AFR 900-7, *Honors and Ceremonies, Decorations,* and AFM 35-10, *Service and Dress Uniforms for Air Force Personnel.*

Q **I am presently purchasing a home under the GI bill. I will be discharged within a few weeks and would like to know if this precludes my receiving other benefits such as educational allowances.**

A If you can qualify for the other benefits provided for you will not be restricted from their use.

Q **When does the newly authorized lightweight year-round blue uniform become effective?**

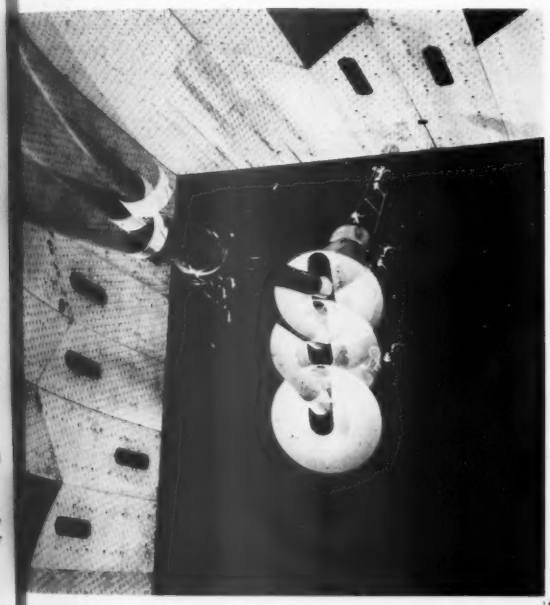
A It becomes officially authorized for wear on May 1, 1961. However, it will not become mandatory until later dates—May 1, 1962 for officers and warrant officers and May 1, 1963 for both male and female airmen.



Panorama

USAF'S FIRST CESSNA T-37B twin-jet intermediate trainer, redesigned and fitted with a wealth of new equipment, entered the inventory at Spence AB, Ga., just prior to the end of the year. A 1,025-pound thrust Continental J69 engine boosts the trainer's speed into the impressive 400-plus m.p.h. class.

WHAT CHA DOIN'? Stephen Querlease (center) and Dennis Wise supervise as A/1C Oranda Jesus puts a reproduction of the new AP shield on a staff car at Albrook AFB, C.Z. *Photo by A/1C Al Frisby*



. . . NOR DARK OF NIGHT can stay the maintenance man from his appointed job. USAF line-men prove the postman is not the only dedicated "courier" who faces the elements at all hours. *Photo by MSgt. Zeisloft*

IF A LAUNCH-PAD malfunction occurred in the booster rocket, astronauts sitting on top in the *Project Mercury* capsule could get real uncomfortable.

However, a solid rocket propellant motor attached to the escape tower would blast the tower and capsule free of the booster, lift the men to a safe altitude where the escape tower would separate from the capsule and the latter would drift earthward by parachute.

Tests simulating this safety device were recently conducted by ARDC's Arnold Engineering Development Center, Tenn., using a one-third size model.

So you're going to

RETRAIN

Have you got what it takes?

(Editor's Note: This is a true story. The names are fictitious, and the author wishes to remain anonymous.)

I've got more time in pay lines than most of the airmen I march to class with have in chow lines. When I was wearing three stripes these kids were in grammar school. I used to give them advice. Not these airmen, of course, but others their age I knew when I was stationed in Kansas.

They were giving *me* advice now. Especially Airman Jackson, my 20-year-old instructor. At first, it was hard to swallow. After a few days though, I had to admire his knowledge and the fact that he was also something of a psychologist. Besides teaching me plenty about electronics, he could sense when a tough question had me stumped. Diplomatically, he'd lead me to the answer. Oh, the class knew, but I appreciated his thoughtfulness.

Thus I learned early in my retraining experience that academic study was only one of the problems I, and hundreds like me, would have to overcome.

I read the handwriting on the wall about 18 months ago, but ignored it. Captain Farnsworth tried to tell me. "Look, Mike," he said, "I know you've been a supply man for most of your 15 years, but the Air Force has too many of them now. Better start looking around for something a tech sergeant can get into."

I laughed it off. "Thanks, captain, but no thanks. The Air Force will figure out something. It always does."

It did. Four months later I got the word and again Captain Farnsworth gave me some advice. Again, I didn't take it because I was sore.

"Mike, you're tabbed for retraining. No way out. You've got a week to choose one of these four fields, and six months before you're on your way. Most of these courses are in electronics and I recommend you take a good long one. It'll open a new career for you. I further recommend you start taking a correspondence course in math from ECI or USAFI. It'll make things easier."

"Yes sir," I said, "I don't need a week. Give me that AB 30133B. What is it? Electronics Countermeasures Repairman?" That course was 32 weeks long—the longest I saw on the list. I chose it for spite.

From then 'til I packed my duds, the wife and kids, and all my resentment to head for Keesler AFB, Miss., I fumed. I threatened to get out of the Air Force. I swore I'd wash out in a week. I was burned! Here was a man who probably knew more about supply than any NCO in the whole U. S. Air Force and they were going to try to make an electron-chaser out of me.

The drive to Keesler gave me some time for thinking. Words that I had used on basic airmen floated back to haunt me. *What's the matter, can't you cut it? You better learn, airman, the Air Force doesn't change its policies to fit your personal desires. . . . Okay, so you're shipping overseas; want my shoulder to cry on? . . . Maybe you just ain't got what it takes to be an airman.*

Any fool would recognize that my attitude was worse than that of any KP-harrassed airman basic. It was slow in coming, but a small hole was opening up in the overcast. I was beginning to see a little light. "Well, okay," I said aloud, waking my wife. "They want me to be an electronics man, by Gadfrey I'll be as good at that as I am at supply." My wife looked at me strangely and then went back to sleep.

The next 32 weeks were the toughest I ever spent. Six hours a day in class and laboratory, four hours with the books in the evenings; instructors asking me questions I couldn't answer, while the youngsters stared at the old vet with five stripes and 15 years' service. I marched in formations with the kids and took commands from two-stripers; but mainly, I learned how to study.

I kicked myself in the afterburner a dozen times for not taking Captain Farnsworth's advice about a math course. The opportunity was there—ECI, USAFI, on-base education—but you know my story.

There were other retrainees in my class, and throughout the school. They had the same problems. A few of them had my original attitude and they didn't last long. I felt sorry for them in a way—but a little superior, too. Mostly, though, the NCOs knuckled down and cut the mustard. In fact, they did more than cut the mustard. I heard a talk by the tech school commander, who told us the retrainees were doing a bang-up job in school.

"Their grades are in the top bracket," he said. It made us feel better and it made us work harder. The colonel made another point. "I know it's tough, but hack it. The Air Force needs your experience, general knowledge, and supervisory ability. All you have to do is become a technician as well."

One thing that helped us become technicians was instructors like Jackson. They would spend hours with the retrainees, strictly on their own time. They boosted us over the rough spots.

Yesterday I got my diploma and my new assignment, which isn't bad—not bad at all. I'm a 30133B now, and in a few months I'll get my five level—with my supervisor's help. Come to think of it, he'll probably be an airman first.

But eventually he'll be working for me. That's the way it seems to work out if an NCO has got what it takes to retrain.

your liability for state income tax

by Lt. Col. Jake L. Abraham
Legal Assistance Office,
Office of the Judge Advocate General, USAF

LIKE millions of other Americans, it is likely that you will breathe a sigh of relief between now and April 15 when you submit your Federal income tax return and consider yourself free of income tax worries for another year. But, be careful! Is the job really complete? A good many military personnel—perhaps a majority—are subject to State income tax laws as well.

Of the 50 States of the Union, 34 at the present time, as well as the District of Columbia, Guam, and Puerto Rico, have income tax laws on their statute books. Servicemen generally are aware that they may be excused from income taxes of the State where stationed by declaring that they are residing there solely in compliance with military orders, and that permanent residence, or domicile, is maintained elsewhere. This legal relief from local taxation on income while in temporary residence is established by the Soldiers' and Sailors' Civil Relief Act of 1940.

But the cost of local government during recent years has mounted steadily. As the cost of public education, highways, police protection, and other State-level responsibilities has soared, State tax officials have begun a drive to collect from everyone all taxes which the State may legally impose. This drive is double-barreled. First, the State where you are stationed is examining more critically your claim of exemption from its taxes; and second, the State of your legal residence is making a concerted effort to discover any of its citizens who should be, but are not, paying its taxes. To this end, State governments are securing information from the Federal government, as well as exchanging information with each other.

Because of your nomadic existence as a military man, you may lose sight of your legal obligations to the State of your permanent residence. In many cases individuals generate a well-intentioned desire to change their legal domicile—possibly with a view toward retirement—but fail to take the positive steps legally necessary to do so. It is thus that a heavy tax liability could be building up against you in one State, while you blissfully believe that you are the legal resident of another.

Normally your native State continues to be your legal domicile as you move about in the course of your career, unless you take positive action to alter it. Thus, while away from home you may claim exemption from local income taxes under the Soldiers' and Sailors' Relief Act, but this does *not* excuse you from legal obligations to the State of your domicile.

If an income tax is levied by your home State, you are subject to it and may someday be faced with an unpleasant reckoning. The machinery of State income tax law varies from place to place, but unless all or part of your military pay is specifically exempted from tax by the law of your home State it is subject to the established levy, even though earned from the Federal government outside the State. Bear in mind that the Soldiers' and Sailors' Civil Relief Act was never intended to be an avenue of escape from or an aid to evasion of your legal obligations.

Another important factor of concern to servicemen is their tax liability for money earned in part-time or off-duty employment in a State where your military pay is exempted from tax under the Soldiers' and Sailors' Civil Relief Act. The State where you are physically located—or where the money is earned—expects you to pay taxes on it under the local laws. Furthermore, when reporting your military pay to your home State for tax purposes, you are expected to include this extra or off-duty income earned while absent, but in most cases, one State or the other will grant a deduction or credit for taxes paid.

Although a wife's permanent residence is usually regarded as that of her husband, your spouse enjoys no exemptions under the Soldiers' and Sailors' Relief Act, and—in general—any income earned by her is subject to taxation the same as the income of any other civilian.

Of the 34 States with income tax laws on their books, a considerable number have established special provisions for military personnel. In a few cases all active-duty Federal pay may be exempted, in others special exemptions are such that no taxes may be due. The following 16 States do not have income tax laws at the present time: Connecticut, Florida, Illinois, Maine, Michigan, Nebraska, Nevada, New Jersey, Ohio, Pennsylvania, Rhode Island, South Dakota, Texas, Washington (State), West Virginia, and Wyoming.

These points deserve your complete understanding:

1. If your home State imposes an income tax, you are legally obligated to report your entire income from all sources and pay such tax as may be found due.

2. Your military pay can be taxed only by your home State and the Federal Government.

3. The income you and your dependents earn from non-military employment (including positions with non-appropriated fund activities or as civil service employees) may be taxed both by the home State and the State where your presently work or live.

4. If any question exists as to your status, or the status of your dependents, see your Legal Assistance Officer. He is NOT interested in helping anyone evade taxes or any other legal obligation. But he is equipped with the knowledge to tell you where you stand.

It Worries Me, General

(Letter to Gen. Thomas Power, CINCSAC)

Dear General:

I am a cafe owner, a newspaper reporter, author and taxpayer.

Every time I hear your planes roaring over Topeka, aggravating the mothers of sleeping babies, annoying my customers and property owners in general when they make low altitude simulated landings, it worries me.

It worries me when I get to thinking that if it were not for those planes of yours flying over us here in a typical section of America, there would be a different type roaring overhead. Instead of those big letters, "U. S.," they would be emblazoned with a red star and hammer and sickle.

It worries me, General, when planes under your command en route to Forbes AFB in bad weather fly so low over my cafe that we can't hear the customers' orders.

The thing that worries me is that if it were not for those noisy airplanes I wouldn't own my cafe and I probably would be shot for writing the comrade commander this kind of a beef.

It worries me also because it has been difficult for people to get a loan on property close to the Topeka Municipal Airport and under your approaches to Forbes. *It worries me because I know if it weren't for those big silver birds of yours people would be jammed like sardines in state-owned apartments without an inch of ground to call their own.*

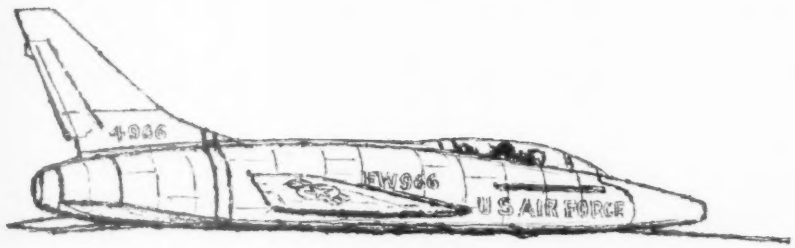
The other day a woman customer told me "something should be done" about those big jet bombers awakening her baby. *I told her "Look up and see that big U. S. on their sides. Lady, that means, US, you and me. We bought and paid for them and if it weren't for them there'd be some other kind of bombers overhead and your little baby might never awaken."*

General, I know our situation here is typical of that in scores of other cities near Air Force installations and it makes me right proud that most Americans take the incidental annoyances with good grace. Couldn't you get a few hundred more of those big bombers? They are my guarantee of the continued way of life that I love. I look up at them and I think, "There goes a chunk of my income tax money. I own a fraction of an inch of aluminum in that wing, a drop of gasoline, a fleck of paint, nut or bolt, a switch or panel light." The more of them I see, the more I know I'm getting my money's worth.

So keep 'em coming, General. The roar of those bombers, the drone of the tankers and the prolonged blast of the fighters is the sweetest music this side of the Iron Curtain.

ED SKIDMORE, Topeka, Kans.

Jet Scoop, Lincoln AFB, Nebr. (Distributed by UPI)



MAYDAY MINUS FORTY

The flaps on your F-100 Super Sabre are frozen full down; you've got 40 minutes' fuel remaining, and the Pacific coast is two hours away. What can you do?

by Capt. John R. Barr, *England AFB, La.*

About the Author. *Captain Barr wrote this dramatic account of TAC pilot Capt. Robert P. Barry, 308th Tactical Fighter Squadron, George AFB, Calif., when the author was TDY at George with the 4505th Air Refueling Wing Detachment. His parent unit was the 622d Air Refueling Squadron based at England AFB, La.*

Captain Barr's story first appeared in The Journal, *George AFB weekly newspaper. It won first place in TAC's Best-News-Story category, the command's highest individual journalistic award.*

It happened last May on an in-flight refueling mission. A flight of six F-100s made a routine scheduled hookup with KB-50 tankers from George AFB, Calif.

At the drop-off point, 750 miles over the Pacific, all six fighters took on their full load of fuel. *Tomahawk Red* lead called for a disconnect and the six aircraft backed off the tankers. As they joined to continue their flight to Hickam AFB, Hawaii, *Red Flight* watched the four tankers in *Headburr Flight* head for the coast and their base.

Ten minutes later, things began to happen—fast.

Captain Barry reported his flaps stuck in the 46-degree position. Immediately he switched again to the refueling frequency to radio his story to the tankers. He was able to climb, he reported, but he could only maintain a minimum airspeed of 220 knots using his afterburner.

He decided to return to George AFB—an unnerving decision because at the rate he was using fuel he would have to bail out an hour and a half from the coast. And the Pacific was choppy that day.

As soon as the tankers heard of Barry's situation, they reduced power and stopcocked all jets to save every drop of fuel they could. But even with this reduction there were only 6,500 pounds of fuel available—just enough to make the coast; but first Captain Barry had to overtake the tankers, effect a hookup and take on fuel.

After an hour of ADF steers and radar vectors, the F-100 pulled into position behind *Headburr Four*. His only chance now was to work his way up the formation and take on fuel from each tanker. A quick check of his instruments showed he had only 40 minutes of fuel remaining. The coast was still two hours away.

After making several attempts to hook up, he ran into another emergency condition—the afterburner wouldn't light. The tankers reduced their speed from 200 to 170 knots and lowered their flaps to stay with the fighter. Time was running out now, and every precious minute counted. Then, with but 25 minutes of fuel remaining, the first hook-up was made.

Not unlike a humming bird that contacts flower after flower, so did Captain Barry guide his fighter into position behind the remaining tankers, adding 30 minutes to his flight plan with each hookup.

As he pulled away from his last hookup, he announced, "At least I won't be swimming today." The coastline was now an hour away and he had just over an hour's fuel in his tanks.

But now *Nutbutter 361,* a tanker en route to Hickam AFB, lost an engine about 100 miles off the coast and was returning to George. Informed of Captain Barry's plight, *Nutbutter 361* reported he had 20,000 pounds of JP-4 fuel available.

The crippled tanker was given a vector to the area and 30 minutes later joined the refueling formation. Captain Barry hooked up with the new arrival and remained in position, gulping the precious fuel until they reached George AFB.

As far as Captain Barry is concerned, the traditional rivalry between fighter men and multiengine men died that day.

"Words can't express my appreciation and gratitude for the wonderful aid and airmanship displayed by those big, beautiful KB-50s and their crews," the captain said.

Atlantic Gateway

Through their portals pass some of the most important messages in the world.

by Capt. Ted R. Sturm, *USAF (Ret.)*

The Atlantic Gateway, and its companion, Pacific Gateway, operated by the 2049th AACS Group at McClellan AFB, California, are only two of 33 key stations (plus many smaller ones) comprising the USAF Communications Complex —short title AIRCOM—operated by AACS. This complex of "long haul" point-to-point and ground/air radio and wire facilities provides the communications required for operation, command, weapon system support, management, and administration of the global Air Force.

AIRCOM consists of several distinct networks, each providing a specific type service.

The Strategic Air Command Network (SACCOMNET) provides the Commander in Chief, SAC, control of the Strategic Strike Force.

The expeditious delivery of air movement traffic on a global basis is a "must" for the safe operation and effective use of aircraft. The Air Operations Network (AIROPNET), including long range ground/air service, and, within the Continental United States, the Flight Service network, provides this service. It serves not only the USAF, but the Army, Navy, and, in some instances, commercial aircraft as well.

The USAF Weather Network (Air Weather Net) promotes an all-weather Air Force.

The USAF Communications Network (AIRCOMNET), another part of AIRCOM, is a worldwide, integrated teletype relay network, consisting of landline and radio channels. AIRCOMNET includes leased, Air Force-operated commercial teletype equipment, Air Force-owned and operated teletype and radio facilities, and U. S. Army and Navy radio and wire circuits allocated to Air Force use. Configured primarily to serve the Air Force, traffic can and is freely exchanged with Army and Navy facilities through designated transfer stations.

A new network of AIRCOM is the Combat Logistics Network (COMLOGNET) being established to provide the communications required for the Air Force Electronic Data Processing Equipment (EDPE) programs.

In operating its part of these systems, the Atlantic Gateway Station serves two types of AIRCOM users—special and common. The former includes Hq USAF, SAC, AWS, and other major commands which are allocated certain circuits for on-call patching and teleconference services. Common users include all Air Force or other units which file messages at base communications centers for transmission via AIRCOM.

Each AIRCOM station consists of four separate facilities: relay (message) center, technical control, and the remotely located transmitter and receiver plants. Separation of the latter is necessary to provide the land required for extensive antenna installations and to isolate receiving equipment from the interference developed by both the transmitters and local noise sources.

"A SIX-WAY PATCH? *Yes sir, in fifteen minutes? Noooo, no trouble at all."*

"THE half million messages we relay each month are like the people who pass through Idlewild Airport," said Col. William B. Carroll, commander of the 2045th AACS Group, AACS' *Atlantic Gateway*.

"As far as the airport people are concerned, their job is to get thousands of people into the right airplanes so that they will get to the right places. That's our job with messages."

The 2045th deals in messages it neither originates nor knows the contents of—except for periodic monitoring to check equipment operation. But taking a message and determining the best way for it to go to reach its destination speedily is the primary function of the Atlantic Gateway station.

AACS has two Gateway stations in the Continental United States, the other handling the Pacfic Area. The 2045th, headquartered at Andrews AFB, Md., sends and receives messages from Labrador, Greenland, other northeast bases, Europe, North Africa, the Caribbean, and points between. It also serves the Pentagon, dealing in cryptographed defense material.

When Colonel Carroll used the term "messages" he was talking about all kinds—voice transmissions, teletype, data, facsimile, CW transmissions—to the tune of 16,000 per day. To see the nightmarish looking apparatus with which this mammoth traffic is regulated it is hard to realize that it was developed in a mere 59 years. Guglielmo Marconi, receiving the first radio signals in the form of a crypt letter "S" from across the Atlantic in 1901, probably never dreamed that half a century later a man 20,000 feet over Africa could carry on a conversation with another sitting at a desk in Washington, D. C.

Yet this is routine now, through the single side-band radio room of the 2045th's central building. There, important defense information worldwide can be received and "patched" to phone lines. During Vice President Richard Nixon's trying South America visit, the White House maintained voice contact with him through this radio room. Again, on his trip to Russia, the radio room followed his progress until the words from a world away came through: "We're on the ground in Moscow." The group also maintained voice contact with Vice President Nixon's plane on its return trip.

Officially, the group provides long distance point-to-point, and ground-air communications through the USAF communications complex called AIRCOM, which supports the global operations of the Air Force.

Fully Automatic

Perhaps the most fascinating function of the Atlantic Gateway station is the AIRCOMNET Relay Center, in the main building. Here the bulk of the messages pause briefly, but very briefly, en route to and from the

COLONEL CARROLL *gets briefed by Sergeant Eckler on the Vice President's trip to Russia as A/2C Ken Szafranski talks to the aircraft's radio operator.*

group's area of coverage. Like a well-known advertising slogan, the messages travel from points of origination, through the Relay Center to their destinations literally "untouched by human hands."

The center uses fully automatic switching equipment, employing 60 separate circuits. Trying to intercept a message through the banks upon banks of continuous tape relays is like chasing a rocket with a fly swatter—unless you know how.

Say a message gets written by an officer somewhere in the ZI. It's typed, makes its way to the base communications center where a tape is cut. The tape is fed into the equipment, flashes via landline to one of five relay centers in the States, and is fed into the Relay Center at the Atlantic Gateway. Continuous tape relay circuits automatically check the message, route it, and shoot it across the room to a "sending" aisle at a rate of 200 words per minute.

But what if something or someone goofs? The system immediately detects not only human but mechanical errors and chimes its need for personal attention through a soft but persistent aisle bell. At the same time, the offended machine, previously anonymous in a bank of many machines, turns on an amber light. Both the bell and the light keep going until an operator corrects the trouble.

It sounds simple, but it isn't. Sometimes circuits get overloaded, but priority traffic must move. Thus, a hair-greying operation called Channel and Tech Control enters the act.

To get the jigsaw puzzle picture of Channel and Tech Control, it's necessary to understand how the messages move when everything works right—which is most of the time. As they pour out of the automatic relays they are still nothing more than tapes, and you can't radio a tape across the Atlantic. All the regular circuits are hooked permanently through Channel and Tech Control to established channels leading to the areas serviced by the group. When everything is okay, the taped messages feed into electronic terminal equipment, and are changed to a form suitable for transmission via a special microwave system to the remote transmitter located about 30 miles from the main building. From there, they are sent on their way to foreign lands.

When regular channels are overloaded or otherwise inoperative, the men of Tech Control step in, seize another channel, and make the necessary temporary hookup to keep the messages flowing.

Like Colonel Carroll's airport analogy, if one plane aborts, or one route closes, airport operations people reroute the passengers on another aircraft.

Pipes Inside Pipes Inside Pipes . . .

Ingeniously, today's modern transmitting equipment is like the magical pitcher that pours both wine and water. But the electronic geniuses have even outdone Mandrake the Magician. In effect, they've developed a pitcher that pours not only wine and water, but milk, oil, gasoline, beer, scotch, and kool-aid. They call this gear *multiplex*. In effect, it enables one transmitter to carry several types of messages simultaneously. Imagine a pipe carrying water. Inside the pipe are several little pipes carrying different liquids. Inside the little pipes are smaller pipes, all carrying the same liquid, but in different colors.

Or, in another system of multiplexing, imagine the large pipe with a multi-position valve that automatically opens and closes, allowing water of one color to flow on one opening, another color the next time it opens, another the next, and so on.

These two methods explain how only a few transmitters can handle a large volume of mixed up messages using only very narrow frequency bands. The latter analogy is called time division where one type message is transmitted for a few microseconds and then another type message is sent, and so forth.

It's obvious that the men in the Channel and Technical Control center are just short of being wizards. With 600 channels to pick from, and at least six different functions each controller must perform, determining the best and fastest way to get a message delivered isn't

easy. In fact, a time and motion study recently revealed that a tech controller makes a decision and acts every 28 seconds, nearly 1,000 times a day.

Antennae Farm

Ingenious as they are, the Relay Center and the Technical Control Facility are helpless without receivers and transmitters—several of them. At the receiver site, one officer and 65 airmen share a neat two-story building with more than a hundred receivers and the auxiliary power equipment to operate them.

The receiver site sits in the middle of 1,750 antennae-infested acres. The steel and wire structures seem to sprout from the ground like spurious plantings from another planet, earning the site the nickname of "The Antennae Farm."

These antennae pluck messages out of the air from all over the world and deliver them into the banks of receivers in the building. Then they are sent to the Relay Center via the microwave hookup.

BEEHIVE *known as Channel and Tech Control is the brain center of the Atlantic Gateway. Hookups are accomplished at the rate of two per man every minute of the day. Main job: keep the circuits open.*

Usually, the receiver site—as well as the other facilities of the group—operates from commercial power, but as CWO B. J. Bricker, site OIC explains, "We are prepared to switch to our own power whenever a storm gets within 20 miles of the area. With critical defense information channelling through the receivers, we take no chances with commercial power failures."

By way of demonstration, Mr. Bricker stepped back and announced, "Okay, the power just went off." He couldn't have caused more commotion if he had said there was a spy in the building.

Power equipment operators leaped forward, pushed buttons, turned knobs and drowned out all sound in the room with the roar of one of the two large diesels. Two minutes after Bricker's announcement, the entire site was operating from its own power source.

In the main receiver room a telephone party line snooper could have a field day. There the operators and technicians listen in on messages flitting around the earth. For them it's legitimate eavesdropping because they necessarily must monitor channels, circuits, and equipment operation.

The transmitter site isn't remote because of poor planning. On the contrary, it was excellent planning, based upon the fact that strong transmitting signals and interference from electrical power equipment would disrupt receiver operation. There are a few differences in the physical layout of the transmitter site as compared to the receiver station. The equipment is different, the manpower complement larger, and, of course, they send messages instead of receiving them.

More Facilities

In total the 2045th operates 16 separate facilities to accomplish its mission. Many are support facilities such as tech supply, headquarters unit, and electronic maintenance. Others are outside the main function of the Gateway station and include the Suitland Weather Relay Center, Andrews AFB Com Center, and Crypto Center.

There is one section however that really hums with activity. It's the Data Relay Center, employing IBM relay equipment to service operational supply requests from USAF bases worldwide. It also handles statistical control type traffic, such as personnel requisitions.

In a normal 24-hour period, more than 50,000 separate requisitions chatter through IBMs. These are priority requests from units stationed throughout the Gateway's area of service. Channeled through selected AMC depots overseas, the requisitions speedily travel the punchcard, data-processing route to the appropriate source of supply in the U. S. This vital procedure cuts weeks from normal requisition and supply procedures, thus insuring peak combat effectiveness with a minimum expenditure of time and dollars.

Obviously, volumes could be written about the operations of the Atlantic Gateway, and the fantastic functions of AACS. For, as the 2045th's executive officer tells you, "Our operations are like a mammoth iceberg, four-fifths of which is hidden beneath the surface of day-to-day events. The Air Force normally sees the visible fifth—the messages it prepares, sends, and receives."

Any quick tour through a Gateway station quickly confirms this. And it brings home with unmistakable impact the realization that the words so matter-of-factly set down on paper are carried to the four corners of the globe on the shoulders of thousands of technicians, operating the most modern equipment available. Little wonder then, that if Colonel Carroll himself were to send a message to the Air Force it would probably read:

"Make sure messages are essential and keep them brief."

TASUKATTA

"We are saved," cried the Japanese boy when he saw the Air Force helicopters.

"If the storm comes I'll be home early," Hiroshi Nakamura called to his wife and two small children as he left his rural home in Nagoya, Japan, to work in the nearby rice fields. His family waved from the front porch as he vanished down the road behind hundreds of wood frame homes like theirs.

Young Mrs. Nakamura glanced skyward where dark, ominous clouds were in turmoil. A wind was coming up fast that September morning and rain began to spatter against the dry ground. She gathered her children close. Life had been full and sweet to them. Now, she felt uneasy.

Turning her back on the wind she led her children inside their warm home as a radio announcer interrupted a music program. "Typhoon Vera is estimated to strike Nagoya early this afternoon." Mrs. Nakamura listened intently a moment, then went about her housework.

Later that morning she had a premonition. She gathered extra food and clothing into small bundles. Two stored blankets were brought out and set in the corner.

Mr. Nakamura returned home early that afternoon as howling winds whipped across the lowlands and the rain pounded down harder. He was worried about the storm. He and his wife quickly battened-down their home. They realized it was only a matter of time before the storm would strike.

During the evening the chill winds and rain increased to a furious tempo. Later the electricity went off. The Nakamuras prayed their home would hold together.

Then It Happened

At 4 a.m. the rain was still thundering down. Flood waters began to seep inside the house. A terrific gust of wind blasted the house and the whole structure swayed. To the terror of the Nakamuras it crushed over to one side with a terrible roar. Falling debris narrowly missed the sleeping children. A wood beam crashed down on Mr. Nakamura. He lay unconscious.

ANGUISHED EXPRESSIONS *of Typhoon Vera victims are reflected in above group which awaits airlift to safety by a U. S. Forces Japan helicopter. They were among almost 5,000 hoisted to safety by U. S. helicopter mercy missions in Nagoya area.*

Photo by A/1C Ed Davis

Mrs. Nakamura screamed into the black night which now engulfed them, but no one answered. She tried to revive her injured husband and calm the crying youngsters. Then she made a quick decision. She would try to save the family from certain death.

The courageous woman pulled her husband from under the heavy beam. An instant later she strapped the bundles of food and clothing to her children. With almost superhuman effort, she lifted her unconscious husband and dragged him into the two-feet-deep waters that swirled around their home. The two sobbing children clung desperately to her kimono.

Wading through the raging typhoon waters, Mrs. Nakamura fought her way toward a sheltered park on high ground a mile away. As she battled her way toward safety she saw the black outlines of dozens of flattened homes, heard heart-breaking cries for help and watched silent, dark shapes move ahead of her. A Japanese boy appeared in the night and helped her carry her unconscious husband.

After a two-hour life or death struggle the small, exhausted band arrived at the park. Scores of other families were already gathered on the high ground. Mrs. Nakamura and the Japanese boy gently set her husband down on a dry, safe spot. Then the long wait for help began.

American Air Bases Alerted

All Japan knew about the *taifu* (typhoon) which had come lashing out of the Pacific to leave a wake of death and destruction in the outlying areas of Nagoya. American air bases were alerted, and when calls for help were received the U. S. Air Force geared itself for its largest Far East mercy mission in history.

Reports of storm destruction began reaching the headquarters of U. S. Forces Japan at Fuchu AB, shortly after the typhoon smashed the Japanese mainland. Hundreds of people were marooned on roof tops and tiny dots of high land. They were without food or warm clothing. Many were already dead.

As the vicious storm subsided the Air Force flashed into action. A dozen helicopters were flown to Komaki AB, a Japanese Air Self Defense Force (JASDF) base near Nagoya, and to other nearby airfields. Teams of air medics accompanied the choppers to the disaster ravished area. The Air Force planes were joined by Army and Navy helicopters and 16 whirlybirds from JASDF.

In the over-crowded park where Mrs. Nakamura, her now conscious husband, and children huddled under a wet blanket, the typhoon's aftermath was terribly evident. Elsewhere homes now looked like crushed match boxes. Farm lands were hidden under five feet of water and power lines were down. But the Japanese at this spot and others in Nagoya had not given up hope.

"We Are Saved"

When Mrs. Nakamura's little, eight-year-old boy jumped up, pointed toward the sky and shouted "tasukatta" (we are saved) the excited crowd searched the skies. Some of the cold and hungry Japanese began to cry when they saw the tiny dots—Air Force helicopters!

ON SAFE GROUND *for first time in a week, victims of Typhoon Vera, photographed above, have been airlifted to safety by a U. S. Air Force helicopter.*

As the first chopper touched down near the stricken people a JASDF pilot, serving as an interpreter, jumped from the airplane and told the almost hysterical crowd to remain calm. He pulled stacks of blankets from the aircraft and distributed food. The Japanese officer said the American airmen would fly the stranded people to safety.

The Nakamura family was among the first people evacuated. They were flown to a disaster control center at Komaki AB. Scattered across the airfield were dozens of helicopters and aircraft. Milk, rice, and medicine were being unloaded from a C-124 *Globemaster* flown from Tachikawa AB. Boats and other rescue equipment were off-loaded from four C-47s.

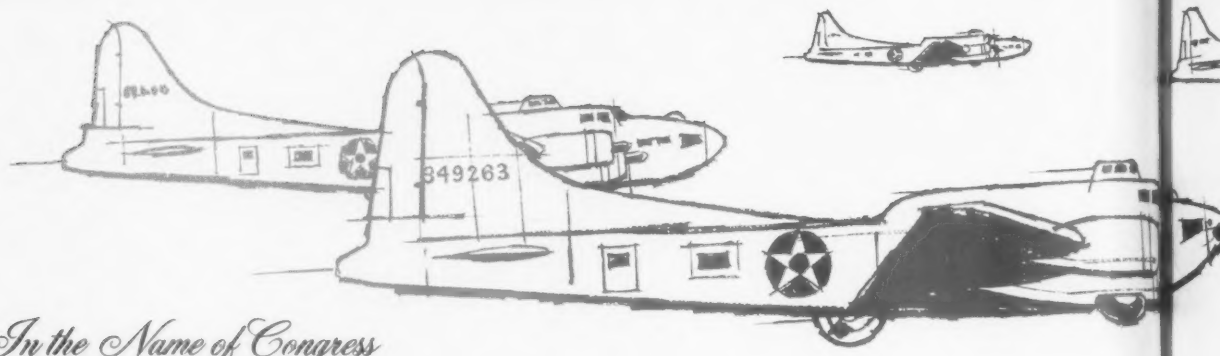
These were five of 100 aircraft that came to Komaki AB with desperately needed food and supplies. They brought in over one million pounds of emergency cargo, including 20,000 field rations and 10,000 wool blankets.

With awe the Nakamura family watched other helicopters land ahead of them with full loads of weary, tattered Japanese. These mercy missions were some of the 575 flights which rescued 5,000 people during the emergency.

When the exhausted Nakamura family climbed out of the Air Force helicopter at the disaster control center they were met by American and Japanese relief workers. Tearfully they asked an interpreter, "How do we say 'thank you'?"

The interpreter slowly shook his head. "No matter," said Mr. Nakamura, "tell them the word for remember—we will remember the American Air Force's kindness for the rest of our lives."

—1st Lt. BRIAN T. SHEEHAN, *Airman Staff*



In the Name of Congress

No. 17 IN A SERIES

Prologue to in

by SMSgt. Hal Bamford

In early 1944 nearly all American war efforts in the European theater were dominated by plans for the cross-channel invasion of the Continent. The key to aerial planning rested upon the assumption that full resources should be concentrated against Germany's war potential. A high degree of destruction was indispensable as a preliminary to invasion.

To this end, aerial bombardment against the Reich's key targets increased in intensity and, before the new year was three weeks old, this increased activity was to lead directly to the Air Force's 24th Medal of Honor.

The story begins several months earlier in upstate New York when tall, thin Forrest Vosler enlisted and asked for a combat assignment. Basic training at Atlantic City, N. J., and the radio theory and code course at Scott AFB, Ill., were comparatively routine for Vosler.

He was an apt student, but his height, one inch over crew maximums, almost halted his combat ambitions. Despite his height, Vosler induced a medic to okay him for aerial gunnery training and he was moved to Harlingen, Tex.

The most difficult hurdle behind him, Vosler quickly completed the gunnery course and was assigned to a Boeing B-17 *Flying Fortress* crew to begin combat training. What seemed like interminable weeks at Pyote, Tex., and Brooksville, Fla., followed.

However, late in 1943, the newly-organized crew was alerted for overseas and, in October, they flew a B-17 across the Atlantic to England, via Greenland, Iceland, and Scotland.

In England the new crew and its aircraft were assigned to the 358th Bomb Squadron, 303rd Bomb Group, known as the "Hell's Angels" group. Tradition of heroism ran high in the organization. The unit was among the most decorated in the entire theater and, earlier in the year, Lt. Jack Mathis, of its 359th Bomb Squadron, had posthumously received the Air Force's 11th Medal of Honor for his part in a raid on Vegesack. (See *Wounded Aboard,* June 1959.)

The new crew soon received its baptism of fire—and not on the conventional first-mission "milk run." Within days after their arrival they drew the always tough target of Bremen, Germany.

Two additional missions, to Solingen, Germany, and to a target in occupied France, both without incident, followed in quick succession. The crew was now beginning to join the ranks of the experienced. Near the close of 1943, Eighth Air Force had grown to a robust force of 25 heavy bombardment groups. Just prior to Christmas, Gen. Henry H. "Hap" Arnold addressed a message to his commanders in Europe.

It recognized the success of the newly-adapted concentration on German industry and outlined the aims of the American air effort for the coming year. Specifically, the first goal was destruction of the German Air Force. To this end, General Arnold advised, "I call upon you to destroy the enemy air forces wherever you find them, in the air, on the ground, and in the factories."

This meant an increasing shift in targets from such sites as submarine pens to the ball-bearing plant at Schweinfurt and the aircraft factories at Regensburg, Marienburg, and Bremen. Most of these lay deep in enemy territory. Consequently, increased resistance could be counted upon with every raid and long-range fighter cover became a vital part of these raids.

Such cover was to play an important part in the last

vasion

TSgt. Forrest Vosler

1943 mission for the crew of which Sergeant Vosler was a member. As their mission assignment, they drew a return visit to Bremen.

True to predictions, enemy resistance was heavy almost from the outset. Covering P-38s and P-51s accounted for at least a half-dozen attackers, thereby easing the strain on the bomber crews and seeing them successfully to the target. But despite this aid, the mission was still hard hit.

Among the planes which were blasted by the defenders was that on which Vosler was a crew member. The citation which accompanied his Medal of Honor graphically tells the story of his heroism during the attack.

For conspicuous gallantry in action against the enemy above and beyond the call of duty while serving as a radio operator-air gunner on a heavy bombardment aircraft on a mission over Bremen, Germany, on 20 December 1943. After bombing the target, the aircraft in which Sergeant Vosler was serving was severely damaged by antiaircraft fire, forced out of formation and immediately subjected to repeated vicious attacks by enemy fighters. Early in the engagement a 20 mm. cannon shell exploded in the radio compartment, painfully wounding Sergeant Vosler in the legs and thighs. At about the same time a direct hit on the tail of the ship seriously wounded the tail gunner and rendered the tail guns inoperative. Realizing the great need for firepower in protecting the vulnerable tail of the ship, Sergeant Vosler, with grim determination, kept up a steady stream of deadly fire. Shortly thereafter another 20 mm. enemy shell exploded, wounding Sergeant Vosler in the chest and about the face. Pieces of metal lodged in both eyes, impairing his vision to such an extent that he could only distinguish blurred shapes. Displaying remarkable tenacity and courage, he kept firing his guns and declined to take first aid treatment. The radio equipment had been rendered inoperative during the battle, and when the pilot announced that he would have to ditch, although unable to see and working entirely by touch, Sergeant Vosler finally got the set operating and sent out distress signals despite several lapses into unconsciousness. When the ship ditched, Sergeant Vosler managed to get on the wing by himself and hold the wounded tail gunner from slipping off until the other crew members could help them into the dinghy. Sergeant Vosler's actions on this occasion were an inspiration to all serving with him. The extraordinary courage, coolness, and skills he displayed in the face of great odds, when handicapped by injuries that would have incapacitated the average crew member, were outstanding.

The entire crew was rescued after spending several hours floating about the North Sea. Only the tailgunner and Vosler had received injuries. After arrival in England, both were hurried to hospitals and the long fight to regain their health began.

Vosler's recovery was slow. During the year following the mission, he was a patient in a total of five Air Force hospitals, slowly regaining his sight and his strength. Early in 1945, he was released from active duty.

Today, Mr. Forrest Vosler is a resident of Marcellus, N. Y. His brief combat career—which he battled innumerable odds to attain—is a lasting memory which includes the saving of several comrades' lives and the receipt of a grateful Nation's highest award.

SLANTS ON SPACE

/// The first total eclipse of the Moon since 1957 occurs March 13. There will be a partial eclipse of the Sun exactly two weeks later.

1960's two additional eclipses come in September. Another total eclipse of the Moon will be seen on the 5th of that month, followed by a partial solar eclipse on the 20th-21st.

In the March 13 lunar eclipse the Moon will enter the Earth's shadow at 1:38 a.m. The total phase starts at 2:41 a.m. and ends at 4:16 a.m., with the Moon leaving the Earth's shadow at 5:18 a.m.

The eclipse's beginning will be visible from North and South America, the Pacific Ocean except for its southwestern section, the northeast part of Asia, the Atlantic Ocean except for its southeastern portions, the west coasts of Europe and North Africa, and some of Antarctica. The end of the eclipse will be visible from North America except the extreme northeastern section, the western half of South America, the Pacific Ocean, Australia except the west coast, New Zealand, the east coast of Asia and parts of Antarctica.

The partial solar eclipse on March 27 will be visible from portions of Australia and Antarctica, or from the ocean between the two geographical masses.

/// As many as seven solar and lunar eclipses—either total or partial—may occur in a given year. There must be two solar eclipses annually whereas in many years there are none of the Moon. In a maximum year for blackouts the count would be five solar and two lunar eclipses.

A complete blackout of the Sun is never longer than 7.5 minutes. With the Moon totality may be as much as 100 minutes. A total eclipse of the Sun is visible from the Earth along a relatively narrow path approximately 150 miles wide. A total lunar eclipse can be observed from any surface point where the Moon happens to be above the horizon. That would be from more than half the Earth which has an equatorial circumference of a little under 25,000 miles.

/ / /

/// Prototype flying saucer? An ancient Latin writer, Julius Obsequens, has left a record of a phenomenon which mystified dwellers near Rome away back in the year 100 B.C. "At sunset," he wrote, "a circular object like a shield was seen to sweep across the sky from west to east."

/ / /

/// Small diamonds occasionally are found in the bodies of meteorites. Most have been of the carbonado or black diamond variety but some colorless, yellow, and blue stones also have been recovered. Carbonadoes from terrestrial mines have important uses as industrial diamonds. The fact that some meteorites contain diamonds went undiscovered until 1888 and this phenomenon has received only limited research since. Specialists in the field believe a more intensive study of the structure of these precious stones from space may throw fresh light on the origin of meteorites or possibly how terrestrial diamonds developed.

/ / /

/// A lucid star means one so bright it can be seen by the naked eye.

/ / /

/// Hell exists on the Moon. A moderate sized crater in the southeast quadrant of the visible side, the feature was named for an 18th century Hungarian astronomer, Maximilian Hell.

/ / /

/// The Sun holds an assortment of mysteries which science hopes Space Age research will eventually clear up. One of the most perplexing is Old Sol's odd rotation behaviour.

Astronomical studies to date give us this picture. A point on the solar equator takes about 24.65 days for a complete circuit. At latitudes 30 degrees from the equator, the rotational period becomes 25.85 days. At latitudes of 60 degrees this increases to 30.93 days. At the poles it becomes approximately 34 days.

While these rotational variations provide further evidence the Sun is not a solid sphere, no adequate explanation has yet been found for such behaviour even for orblike concentrations of gases.

—WILLIAM A. KINNEY

A I R F O R C E M A N U A L

AEROSPACE DOCTRINE

UNITED STATES AIR FORCE BASIC DOCTRINE

1 DECEMBER 1959

DEPARTMENT OF THE AIR FORCE

AEROSPACE FORCES IN PEACE AND WAR

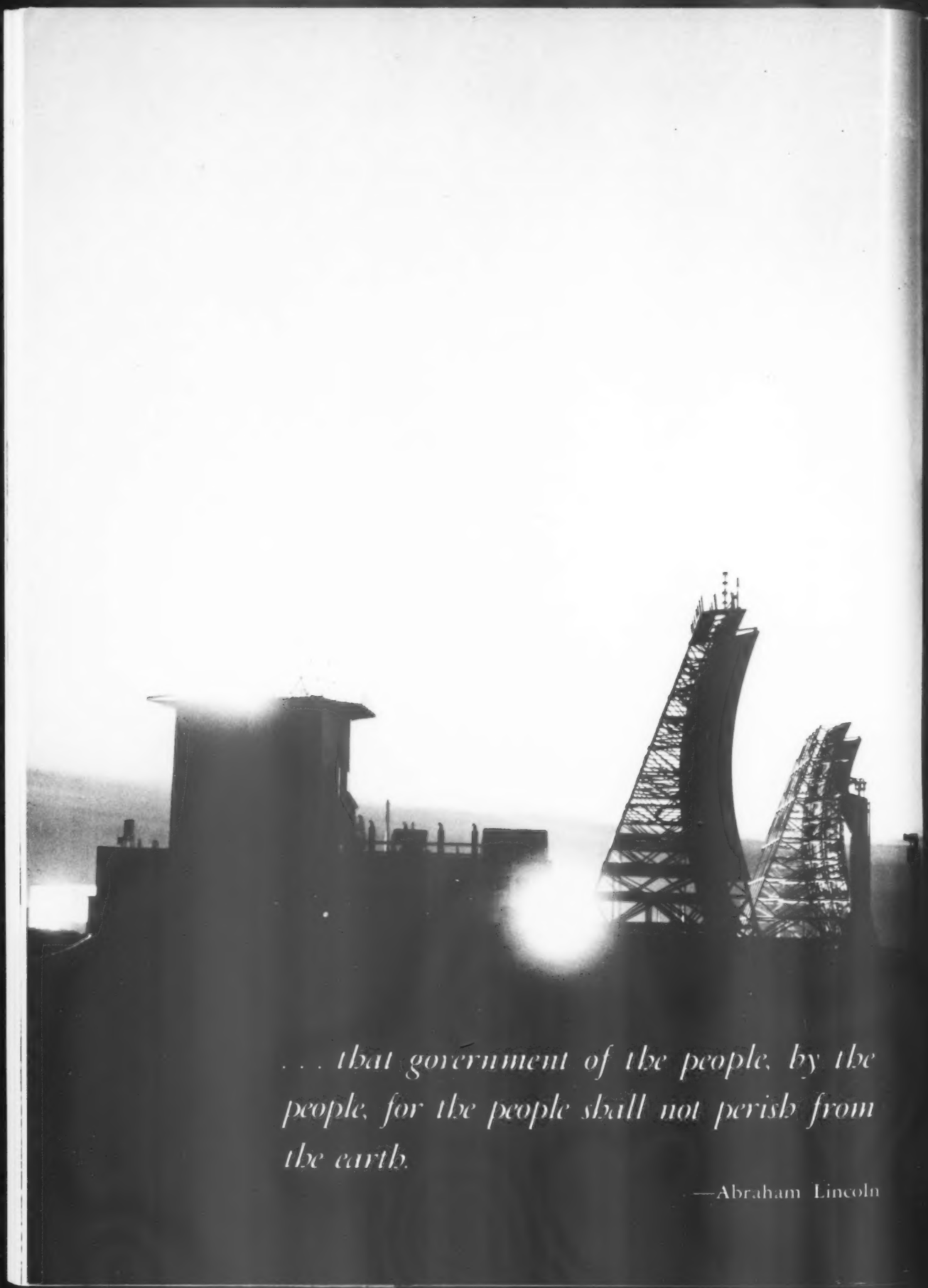
To deter general or limited war.

If general war occurs, to defeat the enemy as quickly as possible.

If limited war occurs, to be able immediately to conduct selective operations wherever required for the prompt resolution of the conflict under acceptable circumstances.

In cold war, to conduct special operations as directed; to counter or forestall activities considered harmful to the interests of the United States and its allies.

In peacetime, to conduct such operations in the aerospace as will advance men's knowledge and capabilities, with benefits to people everywhere.



. . . that government of the people, by the people, for the people shall not perish from the earth.

—Abraham Lincoln